

Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

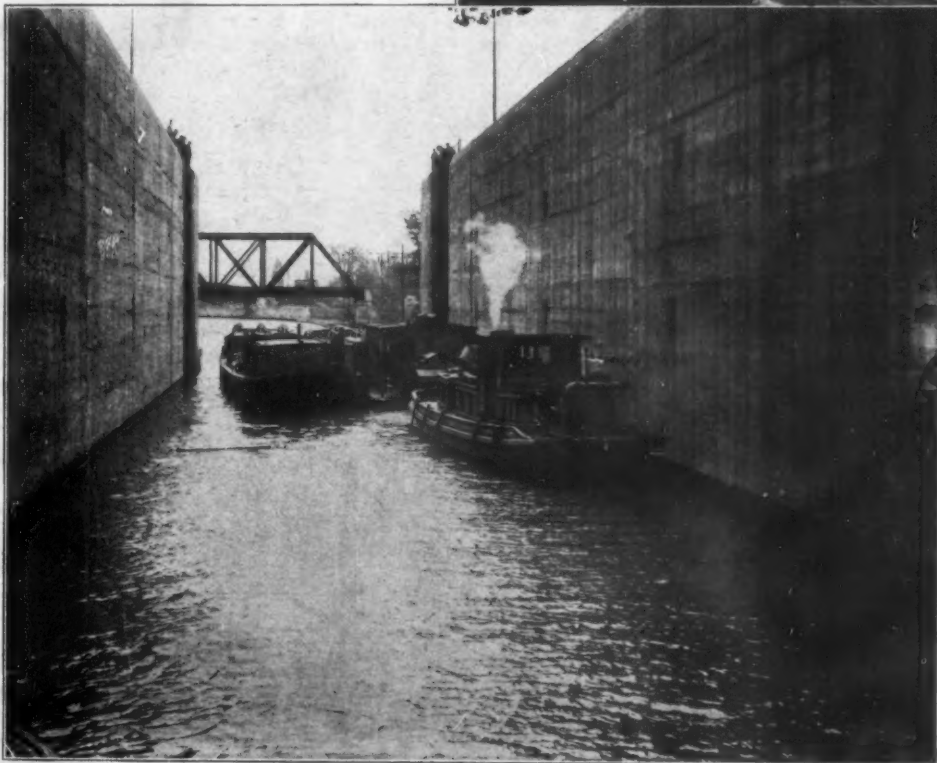
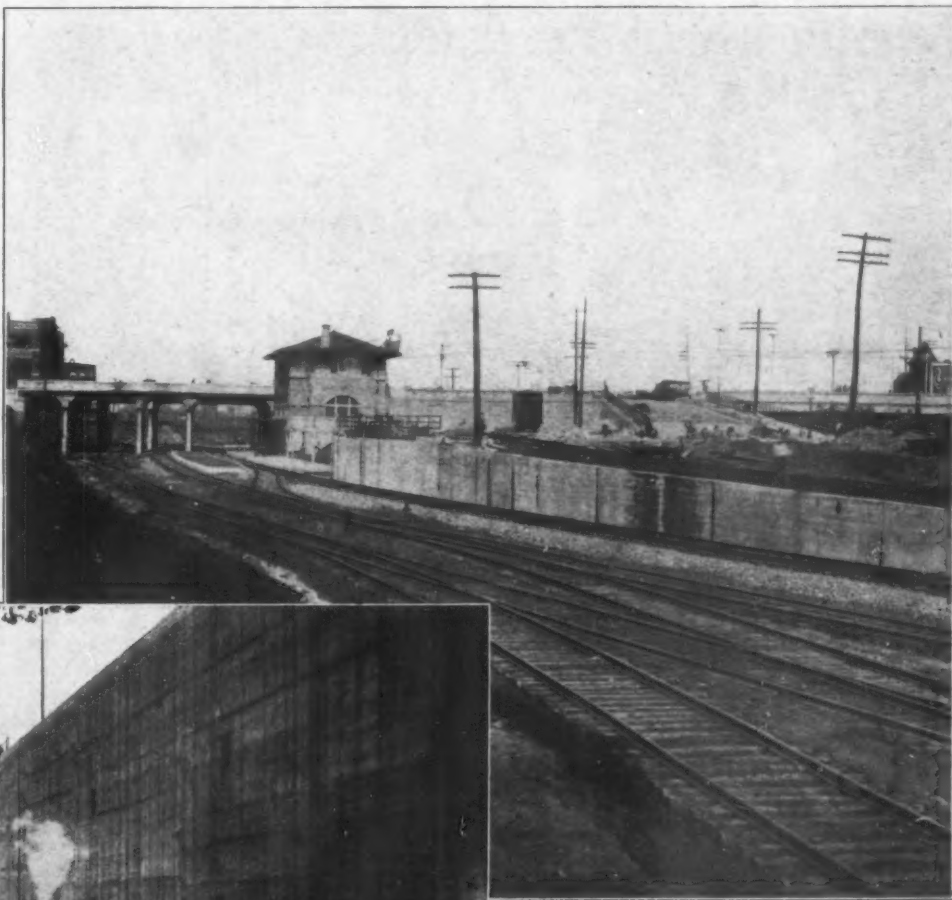
Volume XVI

CHICAGO, ILL., OCTOBER, 22, 1915.

Number 12

Engineering Feats of Importance—

Are illustrated in the new concrete viaduct and Tower Grove Station, St. Louis, Mo., (see photo at right) and the completion of the New York Barge Canal System with 57 locks (one of the locks in photo below).



OF CONCRETE
Portland Cement
Crushed Rock
Sand and Gravel

Make possible the great engineering structures of today. "Permanent improvement" is again the watchword that results from the choice of

CONCRETE

Giant BELT for Your Drives
Granite BELT for Your Elevators
Supremo BELT for Your Conveyors

WHY? ASK US.

Revere Rubber Co.

BOSTON NEW YORK CHICAGO NEW ORLEANS PHILADELPHIA

Clinchfield Portland Cement Corporation

General Office and Mills:

Kingsport, Tenn.

Strong
&
Sound



Fine
&
Uniform

"The Acknowledged New Standard of the South"

Sales Offices:

KINGSPORT, TENN.

1305 Union Trust Bldg.
CINCINNATI, OHIO

908 Commercial Bank Bldg.
CHARLOTTE, N. C.



Patented

"PENNSYLVANIA"

Hammer Crushers For Crushing and Pulverizing Lime, Limestone, Gypsum, Marl, Shale, Etc.
Main Frame of Steel, "Ball and Socket" Self-aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running.
No other hammer Crusher has such a big Safety Factor.

Pennsylvania Crusher Co.

New York

PHILADELPHIA

Pittsburgh

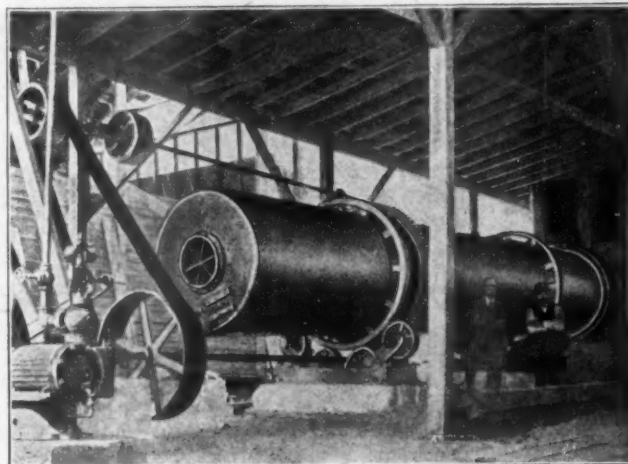
CONSISTENT ADVERTISING

UNLIKE THE PROVERBIAL ROLLING STONE
GATHERS MOSS

RUGGLES-COLES DRYERS

STATIONARY AND PORTABLE

"Built to Dry at the Lowest Ultimate Cost"



Seven different types of dryers in many sizes and special dryers designed and built to meet unusual conditions. We are now drying 67 kinds of materials, among them sand, rock, gravel, gypsum, coal, clay, etc.

Our many years of experience is at your service

Ruggles-Coles Engineering Co.

CHICAGO OFFICE,
McCormick Bldg.

50 Church Street
NEW YORK

Daily Capacity
7000 Barrels



The Quality
Cement of the
Middle West

MORE THAN FIFTEEN YEARS OF SATISFACTION

THREE PLANTS: ALPENA — DETROIT — WYANDOTTE

HURON AND WYANDOTTE

Water and Rail Facilities Best Serve the
Entire Middle West

EVERY BARREL TESTED AND GUARANTEED. SOLD BY THE BEST DEALERS EVERYWHERE

Main Office: 1525 Ford Bldg., Detroit, Michigan

Daily Capacity
3000 Barrels



The Leading
Concrete
Cement

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





Some Wagon This!—

It's the big red wagon—built of oak and steel—built to stand the slams—built for convenience, speed, economy!

A dump wagon built from the design onward as a *dump wagon*.

Marked to the eye by its color—red; marked to the memory by its result—economy.

Called by those who've used it "the best ever."

Get next—write for Folder 2RP

The Troy Wagon Works Co.

Troy (Miami County) Ohio

New York.....50 Church St.	Chicago.....900 Lytton Bldg.
Detroit.....113 First St.	St. Paul.....331 Amer. Natl. Bank Bldg.
Philadelphia.....206 Bailey Bldg.	Washington, D. C.....505 Riggs Bldg.
London, England: 49 Pall Mall	

Troy

Dump Wagons
Farm Wagons

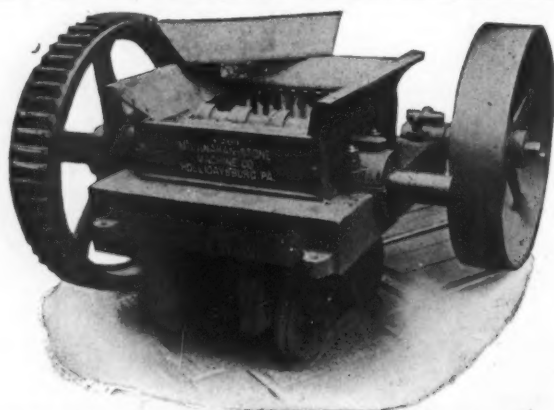


Maximum Door Clearance—Minimum Height for Shoveling



Looped Hinged Doors, automatically raised when they strike the load

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



OUR SINGLE ROLL CRUSHER IS AS SIMPLE AS CAN BE

Is easily fed, makes less fines than either a Gyratory or Jaw. Capacity 5 to 500 tons per hour. For crushing Limestone, Dolomite, Hard Rock Phosphate, Cinders, Etc. Screens of all descriptions. Washers for dirty stone.

Ask for Information

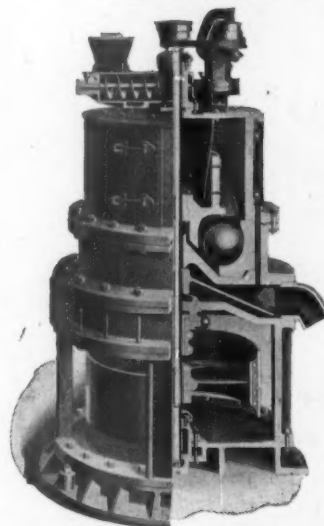
McLANAHAN-STONE MACHINE CO., Hollidaysburg, Pa.

BACON \ FARREL
ORE & ROCK
CRUSHING \ WORLD KNOWN
ROLLS-CRUSHERS
EARLE C. BACON, ENGINEER
HAVEMEYER BUILDING, NEW YORK

The Fuller-Lehigh Pulverizer Mill

A Complete Self-Contained Unit

The most economical mill for producing
Agricultural Limestone



Reduces lump rock to 20, 40, 60, 80, 100, or 200 mesh.

Requires no outside accessory equipment.

Requires no overhead shafts, drives or screens.

All material discharged from mill is finished product.

No inside journals or bearings.

No inside lubrication.

Uniform feeding system.

Constant and free discharge.

Low installation cost.

Low operating cost.

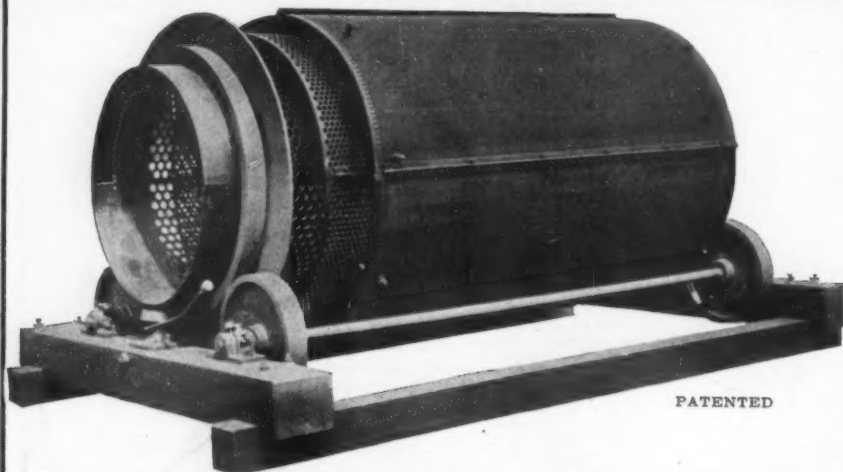
Low lubricating cost.

Dustless operation.

Built in sizes to meet the requirements of your trade. Grinds rock to meet the specifications of all Agricultural Experiment Stations.

SEND FOR CATALOG NO. 70

Lehigh Car, Wheel & Axle Works
Main Office and Works: Catasauqua, Penna.



PATENTED

The O'Laughlin Screen

Stands for

LARGE CAPACITY

In Small Space

*Write for Description
Used in the Most Modern Plants*

Johnston & Chapman Co.

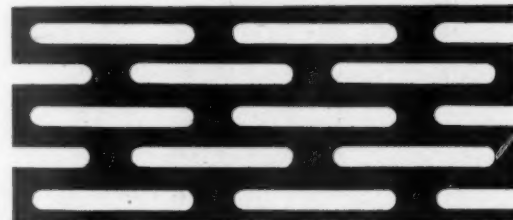
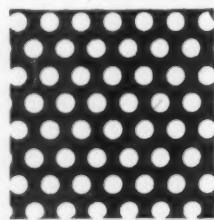
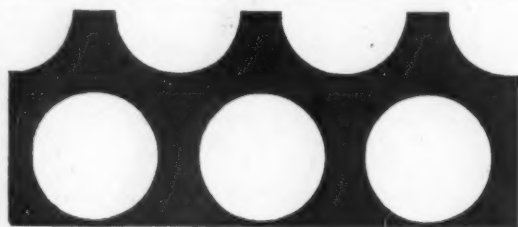
2921 Carroll Avenue

CHICAGO

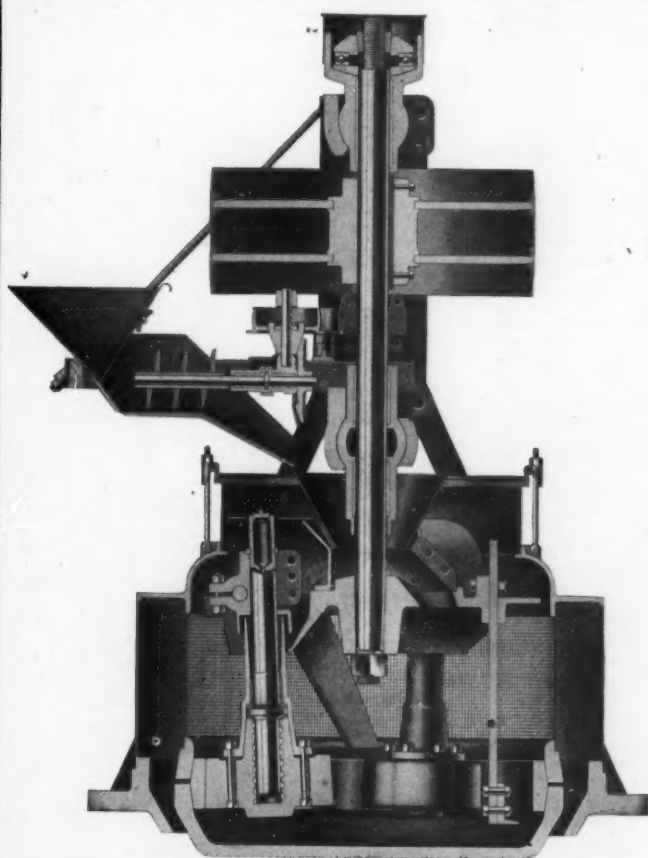
SCREEN SECTIONS for ALL SIZES of REVOLVING SCREENS

CONICAL SCREEN SHELLS
FOR GRAVEL WASHING PLANTS

Everything in Screens Made Right, for
Crushed Stone, Gravel, Sand, Clay, Ore, Etc.



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Pulverized Limestone for Agricultural Purposes Is Economically Produced by the

Bradley Three Roll Mill

It pulverizes raw limestone at the rate of from 5 to 7 tons per hour to the fineness recommended by all agricultural experiment stations, and at such an exceptionally low maintenance cost that no other type of mill can compete with it.

No auxiliary screening apparatus is necessary, as the mill delivers a finished product. This should be considered carefully, as it simplifies the installation and reduces cost of maintenance.

Why Not Investigate?

MANY MILLS IN SUCCESSFUL OPERATION

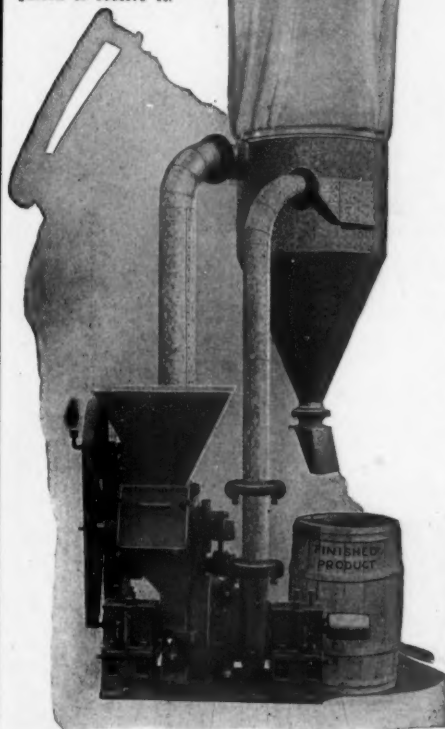
Send for Catalog No. 42 and List of Installations

Bradley Pulverizer Co.

Main Office, 92 State St., Boston, Mass.
Works, Allentown, Pa.

RAYMOND No. 0000 PULVERIZER WITH AIR SEPARATION.

(Patent applied for)
In this installation the Collector is set high so that the finished product may be delivered to barrels, bags or other receptacles conveniently placed to receive it.



If You Want to Grind One to Five Tons per Day of Any Material

This mill is probably exactly what you need. It is the new

No. 0000 Raymond Pulverizer with Air Separation

There are thousands of plants in the country which, in their production processes, require grinding and separating machinery, but who do not have sufficient of such production to justify installation of large grinding plants.

This Raymond No. 0000 plant is especially designed for and ideally fitted to the requirements of such factories.

It can be taken apart and completely cleaned in a few minutes, thus making it always available for the interchange of materials to be ground as desired.

It is instantly adjustable for any fineness of product from $\frac{1}{8}$ -inch to 200 mesh, or finer.

It has automatic feed and the complete plant requires a floor area of only 4x4½ feet.

No special installation is required. It has only to be bolted to the floor and belted to motor to be ready for operation.

A single 5 H. P. motor furnishes ample power to operate it for the reduction of any material.

It provides absolutely dustless operation—is efficient, dependable and fully guaranteed.

Its cost installed and ready for use is extremely small.

Ask us for special literature, fully describing No. 0000 Pulverizer with Air Separation.

We design special machinery and methods for Pulverizing, Grinding, Separating and Conveying all powdered products. We manufacture Automatic Pulverizers, Roller Mills, Vacuum Air Separators, Crushers, Special Exhaust Fans and Dust Collectors. Send for our literature.

Raymond Bros. Impact Pulverizer Co.
1301 No. Branch Street, CHICAGO, ILL.

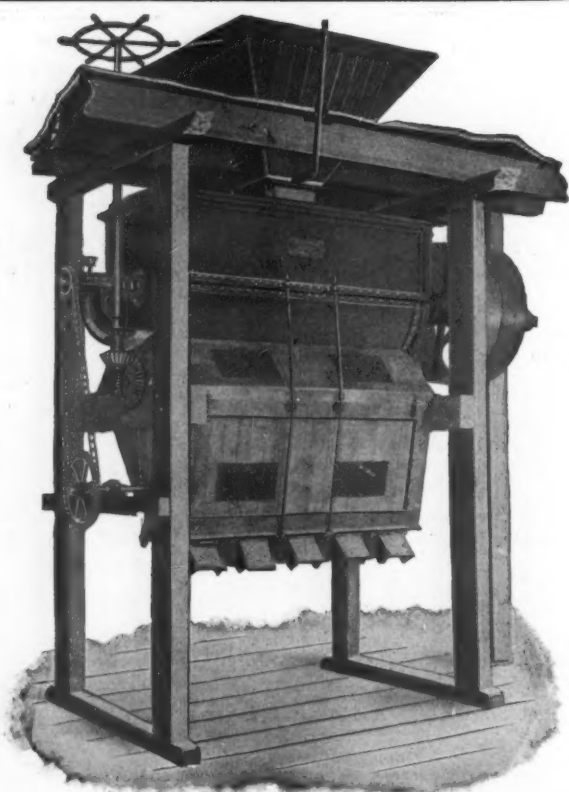
Please send us your literature on No. 0000 Pulverizer with Air Separation.

Name

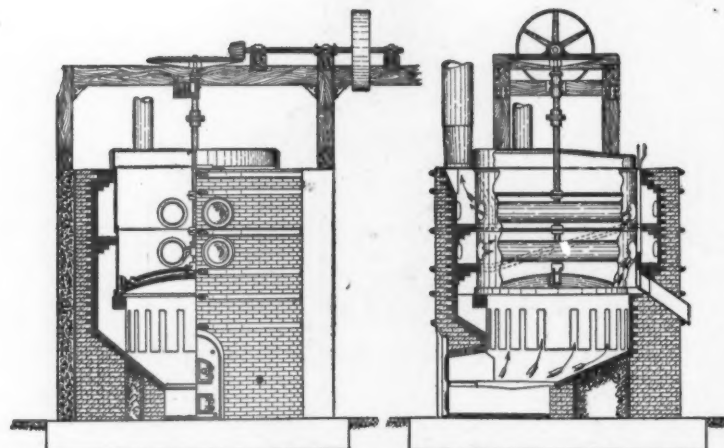
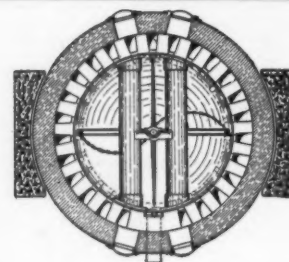
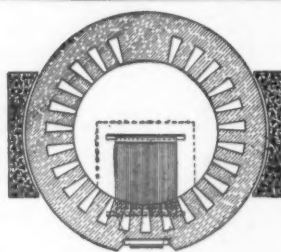
Street

City..... State.....

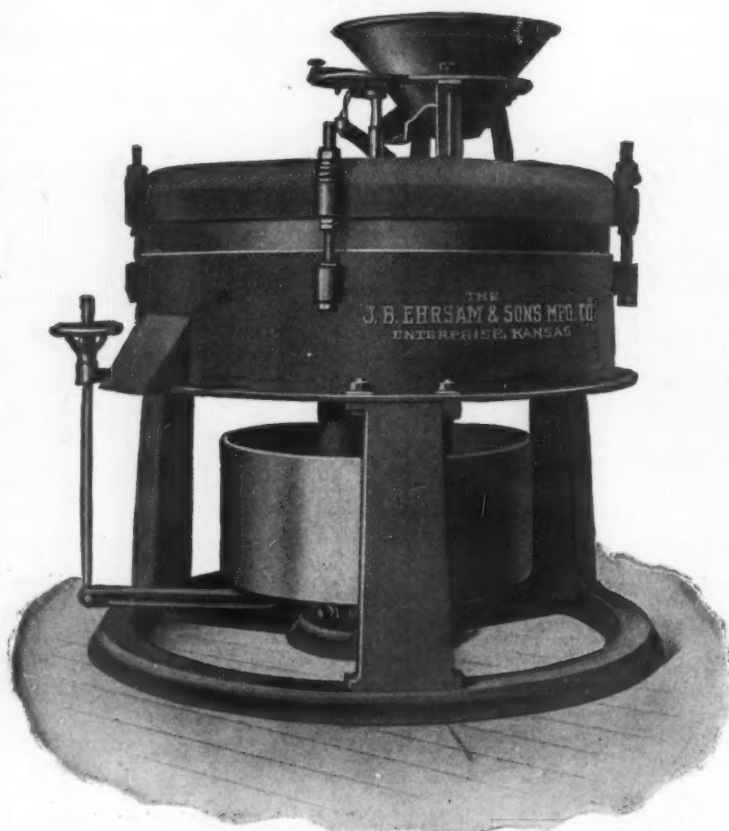
Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



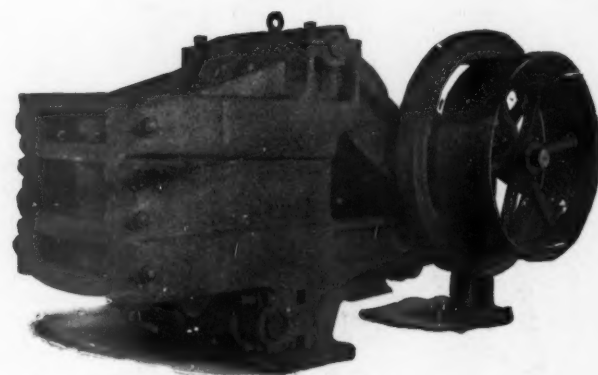
Enterprise Noiseless Mixer



Ehrsam Calcining Kettles—Built in 5 sizes—6-8-10-12-14 feet in diameter, having capacity of from 3 tons to 20 tons to the charge



Horizontal and Vertical Heavy Duty Grinding Mills



Jaw Crushers Built in all sizes up to 24" x 34" jaw opening. Rotary Fine Crushers in sizes up to 42" inside diameter.

The J. B. Ehrsam & Sons Mfg. Co., ENTERPRISE, KANSAS

Manufacturers of Plaster Mill Machinery, Conveying, Elevating and Power Transmission Appliances

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

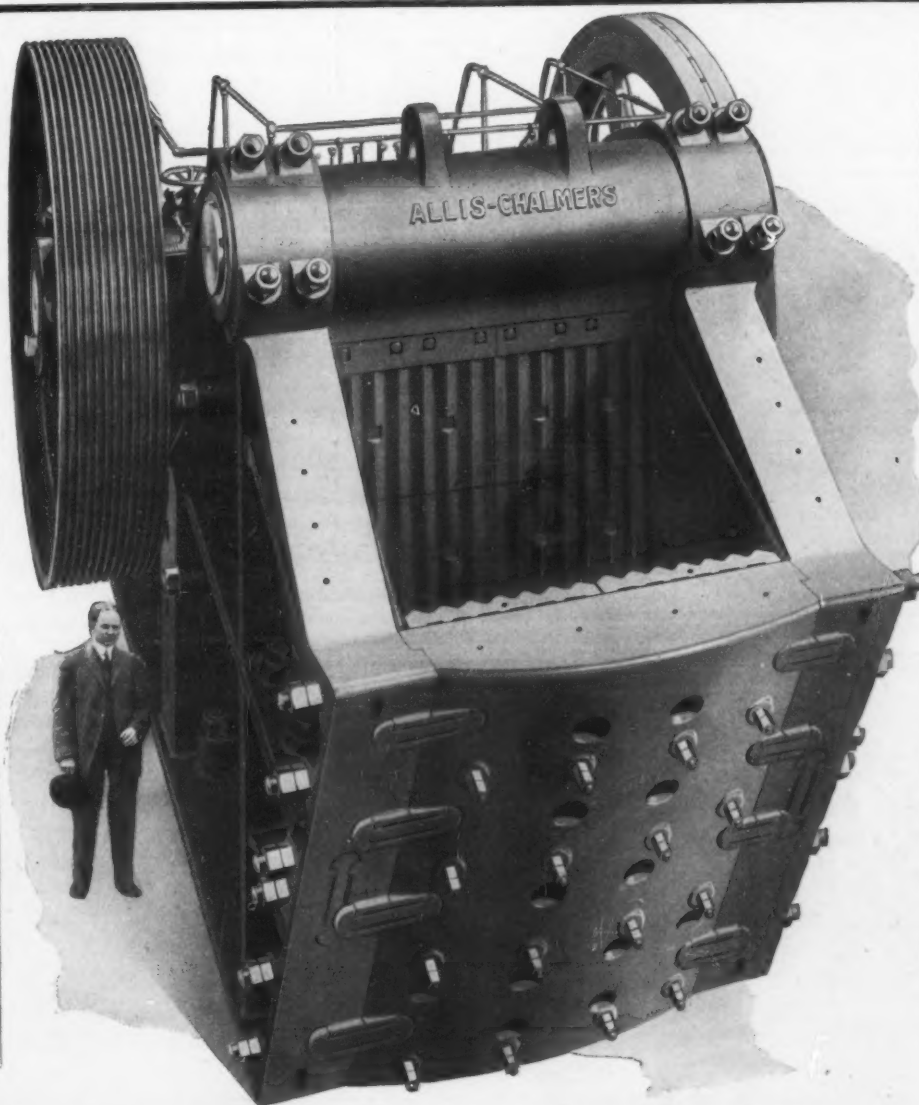
The Giant Among All!

84" x 66" Allis-Chalmers Steel Frame IMPROVED JAW CRUSHER

Other standard
sizes of Jaw
Crushers made:

60" x 48"
48" x 36"
36" x 24"
30" x 18"
24" x 12"
20" x 10"
15" x 9"
15" x 5"
12" x 7"
10" x 4"

Gates Gyratory
Breakers from
Laboratory size
to Giants han-
dling 700 tons
per hour of 48"
Cube Stone.



Complete
Crushing
Plants,
Lime Works,
Cement Mills,
Pulverizing
Plants,
Preliminators,
Ballpeb Mills,
Compeb Mills,
Tube Mills,
Rotary Kilns,
Rotary Dryers,
Pulverators,
Rotary Coolers,
Hummers,
Elevators,
Screens,
Hoists,
Tractor-Trucks
Etc., Etc.

THE ONLY CRUSHER with a VERTICAL SWING JAW

resulting in substantial and unusual improvements in its

1. *Ease of Feeding Big Rocks in Large Quantities,*
2. *Smoothness of Operation,*
3. *Quick and Convenient Exchangeability of Wearing Parts,*

which will be further illustrated in future issues of "Rock Products."

Allis-Chalmers Manufacturing Company

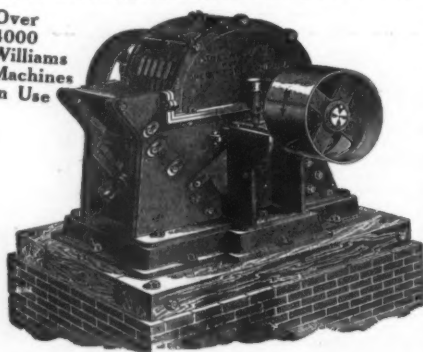
Works: Milwaukee, Wis.

Offices in all principal cities

FOREIGN REPRESENTATIVES—Chile and Bolivia: Mark R. Lamb, Huerfanos 1157, Casilla 2653, Santiago, Chile. Europe, East Indies, etc.: H. I. Keen, 732 Salisbury House, London Wall, London, England. South Africa: Herbert Ainsworth, P. O. Box 6659, Johannesburg, South Africa. Australia: Frank R. Perrot, 883 Hay St., Perth, W. A., and 204 Clarence St., Sydney, N. S. W. South America, China, Philippine Islands, Japan: American Trading Co.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Over
4000
Williams
Machines
in Use



Lump Lime Crushers and Grinders

We specialize in extra heavy crushers for lump lime—for hydrating or for agricultural work

SPECIFICATIONS

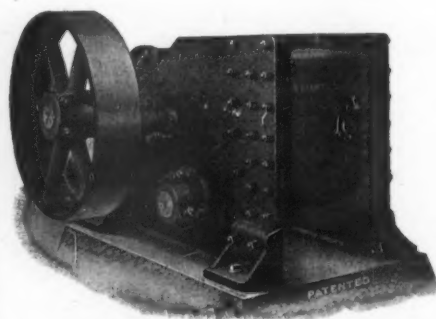
SIZE	WEIGHT	CAPACITY TONS HOUR TO 1/4"	CAPACITY TONS HOUR 6 MESH.	H. P.
No. 1	7000 lbs.	8-10	6-8	20-25
No. 2	8500 lbs.	10-15	8-10	30-35
No. 3	12000 lbs.	15-18	12-15	40-50

A FEW USERS
Kelly Island and Lime Co.
National Lime & Stone Co.
U. S. Gypsum Co.
Tidewater Ft. Cement Co.

ALSO MADE IN SIX LARGER SIZES — WE ALSO MAKE A FULL LINE OF LIMESTONE CRUSHERS AND GRINDERS. WRITE FOR BULLETIN No. 4

The Williams Patent Crusher & Pulverizer Co.

General Sales Dept., Old Colony Bldg., CHICAGO, ILL.
2705 N. Broadway, ST. LOUIS, MO.
268 Market St., SAN FRANCISCO, CAL.



STURTEVANT MACHINERY

CRUSHERS

GRINDERS

SCREENS

Thirty Years of Practical Experience has taught us that no one machine is adapted to all purposes. Customers expect correctly designed machines for their special work. Our large line enables one to select properly. It consists of:

CRUSHERS—For coarse, medium and fine work on hard or soft rock. Jaw, Rotary and Hammer design.

CRUSHING ROLLS—Coarse, medium and fine. Hard or soft rock,—wet or dry.

RING-ROLL MILLS—For pulverizing hard materials.

EMERY MILLS and HAMMER-BAR MILLS—For pulverizing softer materials.

SCREENS—Inclined Vibrating and Rotary for fine or coarse work—wet or dry.

Sampling Crushers, Rolls, Grinders and Screens.

Send for Catalogue.

STURTEVANT MILL CO., Boston, Mass.

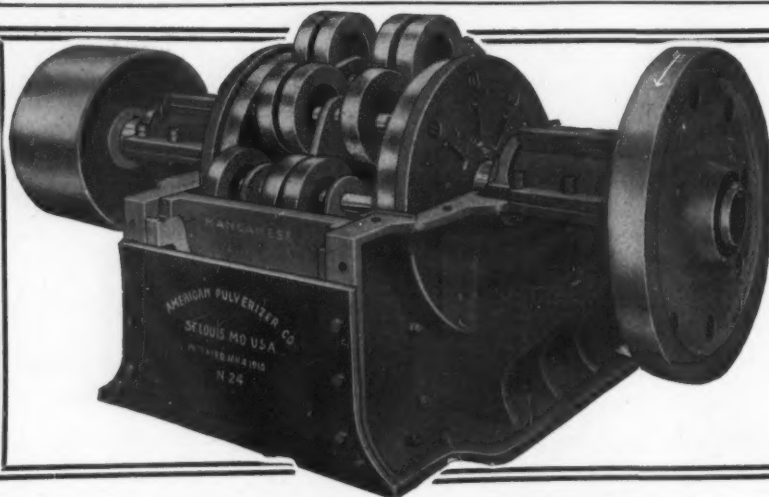
NEW YORK

CHICAGO

DENVER

PITTSBURGH

LONDON, ENG.



The American Ring Pulverizer

will pulverize more limestone, pyrite iron ore, roasted zinc ore, brick bats, 80% ferro-manganese, slag, gravel, flint, shale, etc., with minimum speed, power, and upkeep cost.

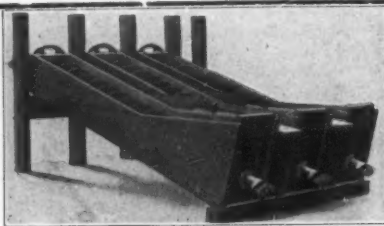
More finished product. More net profit.
Best machine. Cheapest machine.

Guaranteed

WRITE FOR CATALOG

American Pulverizer Company

East St. Louis, Illinois



Sand Washers

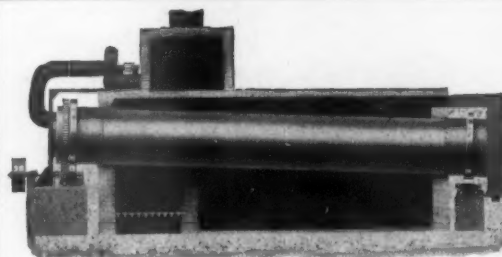


9-Foot Dry Pan

LEWISTOWN FOUNDRY & MACHINE CO.
LEWISTOWN, PA.

Builders of heavy duty crushers and glass sand machinery
Glass sand plants equipped complete

WRITE FOR PRICES AND CATALOG



We make the
largest variety
of
**MECHANICAL
DRYERS**

Write for
Catalog
No. 16

We are also Engineers and Manufacturers of
Car Hauls Feeders
Crushers and Pulverizers Mining Machinery
Drop Forged Chain Mixing Machinery
Elevators and Conveyors Sand Plants
Soft Mud Brick Machinery Screens

THE C. O. BARTLETT & SNOW CO., Cleveland, Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

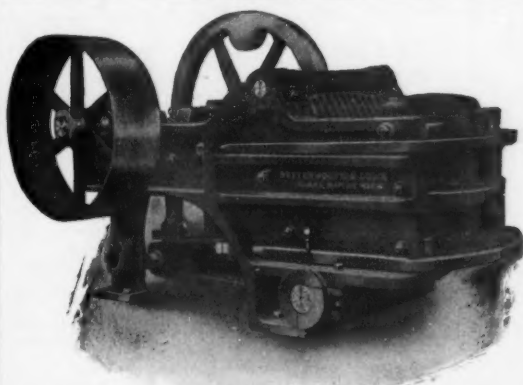
AUSTIN MANUFACTURING CO.

New York Office: 50 CHURCH STREET

CHICAGO

Canadian Agents: MUSSENS, Ltd., Montreal

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



Jaw and Rotary CRUSHERS

For all Rocks and Ores Softer than Granite

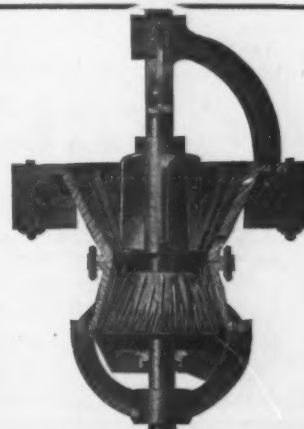
GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhns, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

Butterworth & Lowe

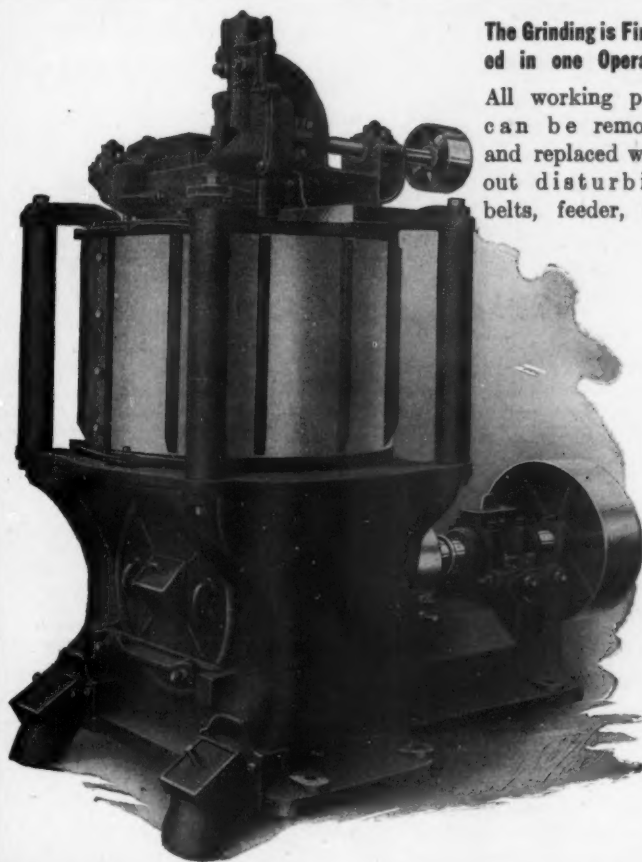
17 Huron Street,

Grand Rapids, Mich.



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 28 x 42"

Crackers—6 sizes—many variations.



The Grinding is Finished in one Operation

All working parts can be removed and replaced without disturbing belts, feeder, etc.

BONNOT PULVERIZER

Grinds and Screens Limestone, Raw Lime and Hydrated Lime

Does it at One Operation. Gives You Any Desired Fineness

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

No. 4 Catalog Explains These Advantages

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

CANTON, OHIO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

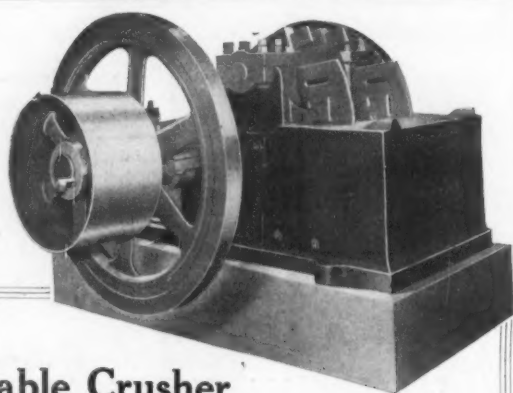
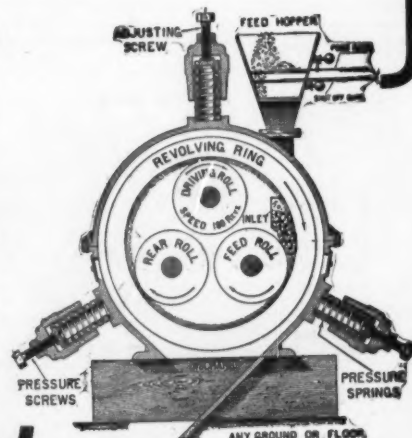
THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and Automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

10 RAPELYEA ST., BOROUGH OF BROOKLYN, N. Y. CITY
LONDON, W. C., 31 HIGH HOLBORN
BERLIN-HOHENSCHOENHAUSEN



The Durable Crusher

is an important asset in the operation of a quarry. The Crusher that will wear the longest is the one that gives the greatest economy.

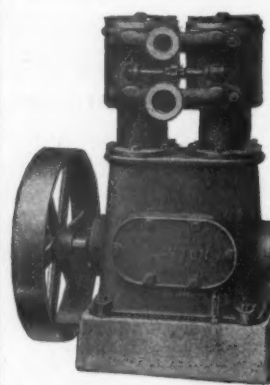
A Feature of the

Blake Type Crusher

is the bed which is one solid casting, being the largest and most expensive piece of the machine. To overcome the wear of the bed caused by the hard iron jaw, we have provided a cushion plate with a babbitt lining poured between the cushion plate and the bed. This not only protects the bed, but gives a uniform bearing on the stationary jaw as well, which enables us to use a much harder jaw without the possibility of its breaking. The stationary jaw is held in place by hard chilled iron side plates.

There is but one reason why you should investigate the Blake Type Crusher. Write today for our complete catalog.

Webb City and Carterville Fdy. & Machine Works
Main Office, WEBB CITY, MO.



THE CLAYTON

High Speed Self-Oiling

Air Compressors

Single, Duplex and Triplex

can be Coupled Direct or Belted to your Electric Motor or other source of power. Simple, Efficient, Convenient and Dependable. Best Machines for Small Pneumatic Tools, Riveters, Air Drills, Cleaning Machinery, Air Hoists, Moulding machine and small Foundry work, and other Machine Shop Service.

Send for Bulletin C-212-58.

INTERNATIONAL STEAM PUMP COMPANY

Clayton Air Compressor Plant

Works: East Cambridge, Mass.

Branch Offices in All Principal Cities

New York Office: 115 Broadway

HOISTING rope of every description for elevators, mines, coal hoists, ore hoists, conveyors, derricks and cranes, stump pullers, steam shovels, dredges, skidder rope for logging, ballast, unloading. Towing hawsers, mooring lines, tiller rope, and ship's rigging. Power transmission. Suspension bridge cables. Rope for all haulage purposes. Flattened strand rope. Non-spinning rope. Steel clade. Flattened strand rope. Non-spinning rope. Steel clade rope. Locked coil track cable for aerial tramways. Flat rope.

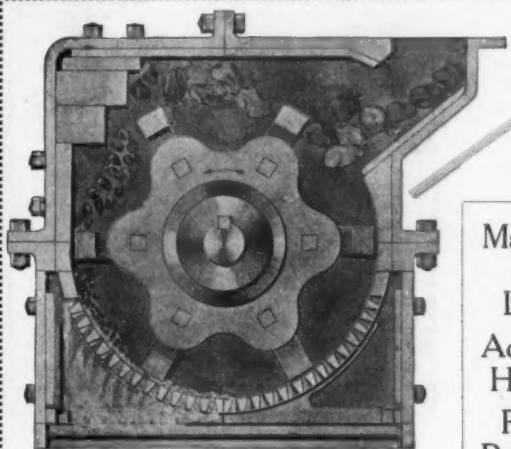
Special rope made to order to suit any purpose

American Steel & Wire Company

Chicago, New York, Worcester, Cleveland, Pittsburgh, Denver. Export Representative: U. S. Steel Products Co., New York. Pacific Coast Representative: U. S. Steel Products Co., San Francisco, Los Angeles, Portland, Seattle.

AWARDED the GRAND PRIZE at PANAMA-PACIFIC EXPOSITION

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



K-B Pulverizer

ALL STEEL

Built for Service and Durability

Write for Bulletin Today

K-B Pulverizer Co., Inc.
86 Worth Street, New York City

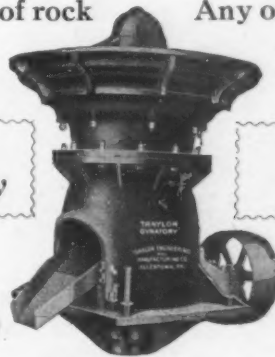
Manganese Steel Linings
Adjustable Hammers
Readily Removable Screens
Large Capacity
Low Power
Economical
Efficient

Large Crushing Tonnage
On all kinds of rock Any or all the time

High Efficiency

Correct Design

SIZES
No. 2 to No. 10



Capacity
5 to 500
Tons
Per Hour

TRAYLOR Gyratory Crushers

are of the most modern and up-to-date type gyratory on the market and contain superior features such as:

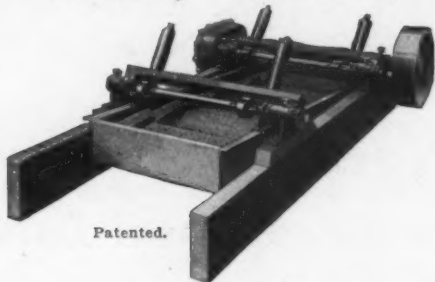
Shafts—proven by severest operation to be correctly designed;
Suspension—at point of least gyration;
Eccentric Bearing—of extra large area;
Accessibility—for dismantling;
Positive Lubrication; and *Cast Steel Gears*.

Above features constitute a few of the many Traylor Features that reduce the cost of up-keep to a minimum.

Catalog "G-2" Describes Our Gyratories.
SEND FOR IT.

Traylor Engineering & Mfg. Company
Main Office and Works: Allentown, Pa.
New York Office: 24 Church St. Western Office: Salt Lake City, Utah

Symons Pulsating Screens For Rock, Gravel, Ore



Patented.

One 24"x7'-0"

With 4 perforated plate sections, 1 3/8" holes, taking 3 1/2" feed screens out, all 1" and under and handles 30 tons per hour.

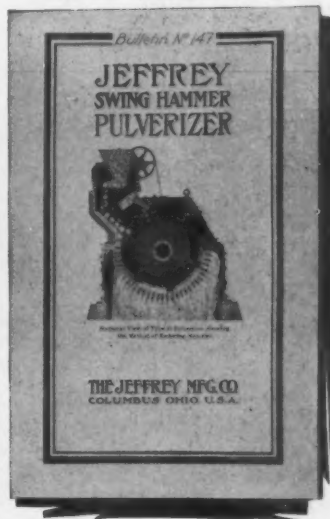
One 36"x5'-3"

With 1" perforations handled 55 tons per hour
With 3/4" perforations handled 44 tons per hour
With 1/2" perforations handled 38 tons per hour

Manufactured and Sold Only by

Chalmers & Williams

1450 Arnold St. Chicago Heights, Ill.
Chicago Office: Edison Bldg. New York Office: Equitable Bldg.



Send for
This Jeffrey
Book Before
You Buy Any
Pulverizers

*It's Free
to You*

Its 48 Pages are full of interesting Data, Illustrations, Drawings, and other information fully describing the Construction and Application of our various types of Swing Hammer Pulverizers, the recognized Standard for grinding Dry Rock and other fibrous materials.

Fill in the coupon and mail us today. Send us your samples for free test, and we will be glad to recommend the machine for your requirements.

Jeffrey Manufacturing Company
935 North Fourth Street, COLUMBUS, O.
Please send copy of Bulletin No. 147.

Name

Address

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



The House Was Good

An Old House Made New

by using

SYKES
Expanded Cup
Metal Lath & Stucco

But the Stucco Overcoat Made
It Twice as Good

A Stucco House Means a Saving on Paint and on Coal

Converting a frame house into a Stucco House is a simple job and costs very little considering the big value it adds to the house in beauty and in durability. Contractors and builders find this method of renewing a house both profitable and certain to please their customers. For the best results—use—



**Expanded Cup
Metal Lath**

Self
Furring

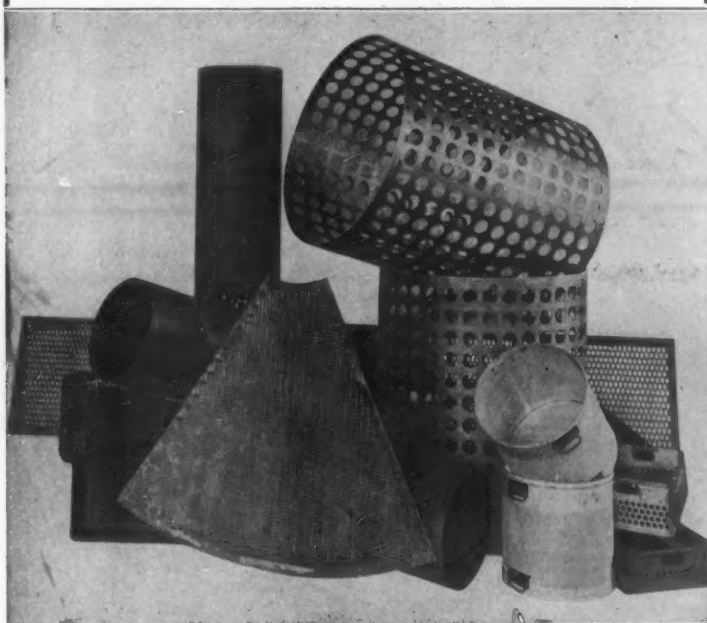
Est. 1877
Approved by Architects. Indorsed by U. S.
Government for Post Office Work

Sykes Metal Lath is Self-Furring—this saves 3 to 5 cts. a sq. yd. Sykes is heavier, therefore more rigid and more durable than other expanded laths cut from same gauge of metal because Sykes is cut with a wider strand

For Stucco Work, Overcoating and for Interior Work as well, Sykes Expanded Cup Metal Lath is Best and Most Economical. **Free**—Complete Specifications for Stucco and Metal Lath and sample of Sykes Metal Lath. Write to

Sykes Metal Lath & Roofing Company, 508 River Road, Warren, Ohio

PERFORATED METAL STEEL SCREENS :: IRON AND STEEL WORK



ELEVATOR BUCKETS, STEEL TANKS, ETC.

W. TOEPFER & SONS

ESTABLISHED 1855

183 Broadway

Milwaukee, Wis.

Don't take our Word

for the superiority of "Kno-Burn"
both as a lath and as a selling
proposition for you.

Ask the architects and contractors in your
town what they think about

Kno-Burn
Expanded Metal Lath

Then, better still, send us a trial order
and let us prove our claims as to prompt
shipment and attention to orders.

The most profitable lath for you to handle is
the one that comes in enough styles to fill any
sort of order; that is well known to your trade;
and that has shipping facilities that make it
unnecessary for you to tie up any amount of
money in laying in a stock—that lath is
"Kno-Burn."

Write us today for literature and prices and don't forget
to give us a trial the very next time you buy metal lath

North Western Expanded Metal Co.

929 Old Colony Building

Chicago, Illinois

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

*Every plant is a different
problem & Goodrich solved
mine with just the right
Conveyor Belt—and
can solve yours.
Supt. Wise*

Goodrich specialists who know where tonnage costs come from and where lost power goes, are at your command *today*—every day—without obligation on your part.

These men are no theorists. They *know* conveyors and they know materials. We have found that this brand of service, coupled with our brands of belt, pay us—and it will pay you.

Goodrich conveyor belts are as carefully built from an engineering standpoint as any machine you know.

Perfect flexibility, needed tensile strength, edge that can't tear off, resilient rubber cover—all contribute to the *perfect balance* which means longest service, uninterrupted duty—fewest shut-downs—no spillage.

Goodrich **LONG LIFE MAXECON** **CONVEYOR BELTS**

We could cite hundreds of cases where these great belts have saved customers money on their conveyor investment. It will pay you to let the Goodrich man tell you what our service means in dollars and cents saving to you.

Goodrich Products:

Conveyor Belts	Hose—all kinds
Elevator Belts	Packing
Transmission Belts	Valves, etc.

The B. F. Goodrich Company

Factories: Akron, Ohio



"Get in touch with Goodrich"



Specifications Mr. Dealer Sell Waterproofings

IT'S not enough to give your customers the best of waterproofing materials—you must do that and add the best of service as well.

With the GF Waterproofing Line, service consists of the most practical sort of knowledge we possess, that is, complete specifications for doing the work.

Our Waterproofing Service Department

keeps in close touch with GF Dealers, examining all the conditions surrounding a job, recommending the best method and the proper materials, furnishing detailed specification for waterproofing from start to finish of each job.

Such specifications sell GF Waterproofings because they insure economical and reliable results. They build the dealer's business upon satisfied customers.

There are twenty-four GF Waterproofing Products, giving the Dealer a line so complete that he can command all the business on both small and large building operations.

The Waterproofing Handbook, written with this principle of Waterproofing Service in mind, is free.

*Full Details of Dealer
Contracts Also, Are Sent
Upon Inquiry of*

The General Fireproofing Co.

1910 Logan Avenue
Youngstown, Ohio

Washing and Screening Equipment for Gravel Dredges



We design and equip complete floating plants for dredging, washing and screening sand and gravel. The above illustration shows the U. S. War Department dredge "Portland" equipped with Dull machinery. The excellent results that have been obtained again demonstrate our ability as engineers and the efficiency of our equipment.

We Also Manufacture

CABLEWAY EXCAVATORS, SMALL WASHING AND SCREENING OUTFITS, CONVEYORS, ELEVATORS, ETC.

Write for catalog, "Plants for Washing Sand and Gravel"

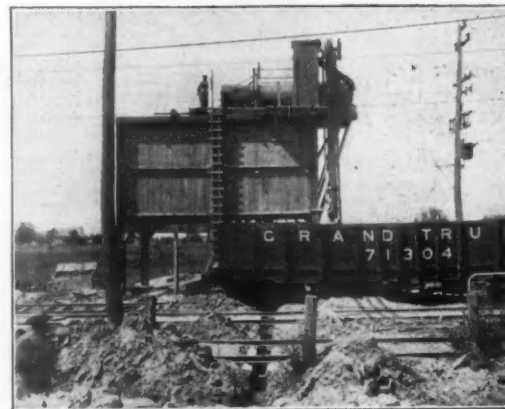
The Raymond W. Dull Company

1914 Conway Building, Chicago, Ill.

CONTRACTORS, ROAD BUILDERS, MATERIAL MEN;—

This photograph illustrates the use of the latest and most modern machinery and equipment for handling concrete aggregates.

It shows the Portable Handling, Washing, Screening and Storage Plant used by the R. D. Baker Co., Detroit, Mich., in building 17 miles of the famous Wayne and Oakland County Concrete Roads. Material is received from the pit in Standard Gauge Drop Bottom Cars, is dumped in a hopper under track, conveyed by feeder to the bucket elevator which delivers to the Washer. The Washer washes and screens the material, delivering to a set of



WELLER-MADE

Unit-System Storage Bins

and when this job is finished all of the bins and other equipment may be taken apart, moved any distance and reassembled at a moderate expense.

If you are spending a lot of money, on hand labor, on any concrete mixing job whether material comes by team or railroad, you are simply wasting good money.

If you want a money-saving outfit like shown or one more suitable to your special requirements we can give it to you if you are willing to spend a fair amount for something that will put you way ahead of your competitors.

If we furnish you any of this equipment you can bet your boots that it will stand up and do your work day and night and that it will not be some flimsy machinery put together any old way to sell.

We do not give you something for nothing, but we certainly do give you more for your money than any one else in this line and we can prove it.

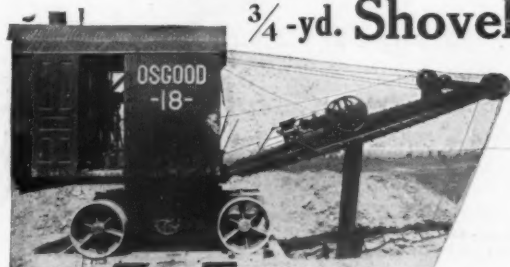
When you want anything in the line of

Elevating, Conveying, Screening or Transmission Machinery
there is just one answer

WELLER MFG. COMPANY, CHICAGO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

OSGOOD "18" 3/4-yd. Shovel



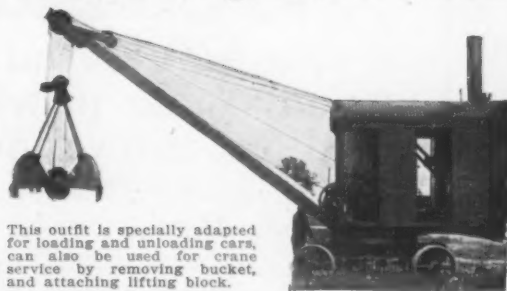
Equipped with boom raising and lowering device, digging a 15-ft. sewer trench for Wm. McDowell & Co., Cleveland.

OSGOOD

Machinery of Proven Efficiency

will make your job a profitable one
Let us send the details
Steam, Gasoline and Electric
Shovels
Deep Water and Dipper
Dredges

OSGOOD "18" 3/4-yd. 25-ft. Boom Revolving Clam Shell



This outfit is specially adapted for loading and unloading cars, can also be used for crane service by removing bucket, and attaching lifting block.

THE OSGOOD CO., Marion, Ohio, U. S. A.

An Opportunity

to reduce your handling costs.



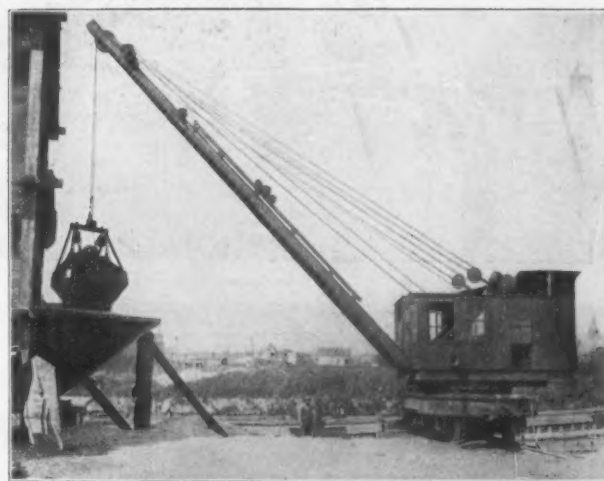
C. R. S. Locomotive Cranes

Power — Speeds — Larger Capacities
Low Cost of Operation and Maintenance

Write us for information as to how other companies have reduced their handling costs with this crane.

THE CLEVELAND RAILWAY SUPPLY CO.
CLEVELAND, OHIO

"ON THE JOB"



The Artesian Lime and Stone Co., Chicago, have solved an important cost problem in the handling of crushed limestone. By the use of a

McMyler Locomotive Crane

they are operating now at a great increase in efficiency and reduction in cost.

Our Engineering Department is ready to co-operate with YOU for a more efficient handling of your material.

THE McMYLER INTERSTATE CO. Dept. F-4
CLEVELAND, O.

WHEN YOU ABSOLUTELY KNOW THAT

Ricketson's Mortar Colors

are pure and brilliant in tone, economical in application and a permanent guarantee against fading and washing

Why not INSIST on having them?

They are the acknowledged best for all uses—Mortar, Brick, Cement, Concrete and stone. Red, Brown, Buff, Purple and Black.



RICKETSON MINERAL PAINT WORKS, MILWAUKEE, WIS.

LINK-BELT CRANES ARE LABOR SAVERS ON THE BIG JOBS.



LINK-BELT COMPANY Philadelphia, Chicago, New York

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Consider!

You have to haul clay, ore, sand or any other material five hundred feet to five miles.

This material is in or can be brought to a small bin with discharge chute attended by one man.



Two Lines of Barrows

A continuous stream of barrows pass the bin, each receiving its full load, the operator simply opening and closing a gate in the chute.

The barrows pass on down the line through the air, at the end they automatically turn over, dump the load and pass back to the starting point ready for another load.

Not a human being touches the barrows! They move along regularly and automatically.

**This Is a
Lawson Loop Line Tramway
Can You Beat It?**

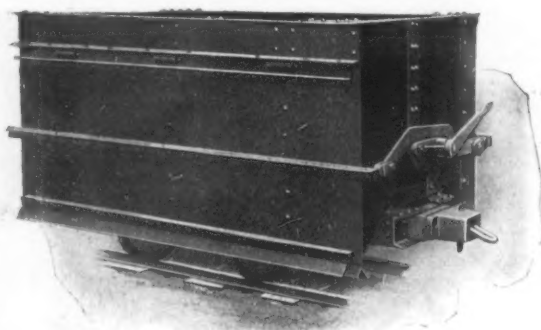
Write for full information

Ambursen Company
61 Broadway, New York City

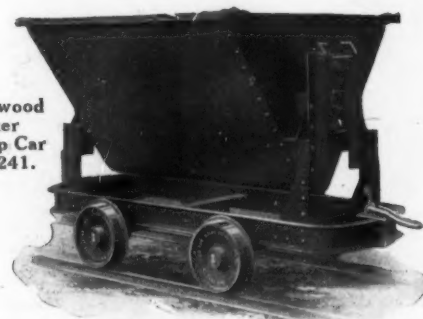


EASY TO UNLOAD

The type of quarry cars illustrated here are particularly adapted for handling rock, earth and other materials to be discharged on both sides of the track.



Lakewood
Quarry Car, No. 1491



Lakewood
Rocker
Dump Car
No. 241.

Strong—durable—and with an experience of 18 years of car building behind them, they are an economical and efficient addition to any quarry.

Write Today for Our Catalog No. 10

The Lakewood Engineering Co.
Cleveland Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

The "BOSTWICK" LINE of Building Metal Goods IS INCLUSIVE—FROM THE WALLS TO THE TRIM



Metal Corner Bead "Bostwick" Metal Corner Bead is one bead for all purposes, a bead for every different use is unnecessary. The long supporting clip adapts it to any depth of ground, gives the ability to plumb any corner, distributes the shock and jar over the largest possible area, giving the greatest measure of protection. The clip fits every angle of the bead (a feature found only in "Bostwick" Bead) and reinforces to double strength every 12" it is used.

Get a line on "Bostwick Dealers' Service"

THE BOSTWICK STEEL LATH COMPANY

Niles, Ohio

Mr. Gravel Producer: If by the use of one machine you could eliminate a complicated excavating and conveying system, would you not be interested?

The Shearer & Mayer Drag Line Cableway Excavator

Digs; conveys material a distance of 500 ft. or more, elevates and automatically delivers to bins, screens, cars or storage piles.

One Machine, One Operation

One Man Control

Write for illustrated and descriptive booklet

Information free

SAUERMAN BROS.

1140 Monadnock Block
Chicago, Ill.

(PATENTED)



THE LEADER IS THE NEGLEY DRAGLINE SLACK CABLEWAY EXCAVATOR FOR ALL OPERATIONS

DISCHARGES FAST OR SLOW AS DESIRED
AT THE MAST OR ANCHOR
**INVESTIGATE THE SUPERIOR VIRTUES
BEFORE BUYING
IN OPERATION & MAINTENANCE COST
IT IS THE MOST ECONOMICAL**

Indianapolis Cable Excavator Co. INDIANAPOLIS, IND.
Beauty Av. & New York St.

LELAND EQUIPMENT CO., San Francisco, Cal.
CHAS. T. TOPPING MACHINERY CO., Pittsburgh, Pa.
H. K. ROBINSON, St. Louis, Mo. W. A. BROWNING, Dallas, Tex.
LECKY & COLLIS, Ltd. Montreal Toronto Napanee
WESTERN SUPPLY & EQUIPMENT CO., Ltd.
Edmonton Calgary Lethbridge

SAND AND GRAVEL PLANTS

This One 3,000 Tons. Daily Capacity



THE CABLE EXCAVATOR CO. Commercial Trust Building.
PHILADELPHIA, PA.



The Hardest Job—The Easiest Way

Digging into trap rock has always been slow work—a back-breaking job, and very costly. Now note what a

Haiss Wagon Loader (Patented)

can do. It digs this material and delivers it into a truck at a speed of 1 cubic yard per minute for a cost of less than 1 cent per cubic yard for electric or gasoline power. Of truck loading methods no choice is left after the efficiency of this loader has been witnessed. Write for cost data, and the details of this machine's powerful construction.

The Geo. Haiss Mfg. Co., Inc.

146th St. and Rider Ave.

NEW YORK CITY

Protect Your Walls—Marvel Window Chutes

protect against coal haulers and burglars. See the wings! What's the use of a pouch, anyway? Safety first. Marvels lock automatically. Heavy and indestructible.

Mr. Material Man: If you are early enough you can have the exclusive agency in your city, and our prices are right. And the individuality of the Marvel Chute makes it easy to sell.

DIMENSIONS AND PRICES Chutes with Solid Iron Doors

NOTE—Marvel Junior has no wings. All others have swinging wings. Marvel Junior Marvel Junior Marvel Junior
No. 469 No. 413 No. 513 No. 618
Wall opening.....17x24 17x24 17x24 22x33
Depth of body.....9 in. 13 in. 13 in. 18 in.
Shipping weight.....55 95 100 130
Price\$5.00 \$7.50 \$8.50 \$12.00

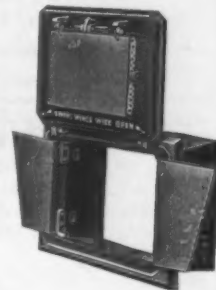
Chutes with Wire Reinforced Glass in Door

Marvel Junior Marvel Junior Marvel Junior
No. 109 No. 113 No. 213 No. 313
Shipping weight.....60 110 125 160
Price\$6.00 \$9.00 \$10.00 \$13.50

Chain opening attachment no extra charge.

Ask for Leaflet "R."

Interstate Mfg. Co., Oskaloosa, Iowa



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

"A WORD TO THE WISE"
MEDUSA-IZE



"IT'S PURE WHITE"

You Should Use Medusa White Because It Is

1. Pure white in color.
2. Non-staining.
3. A true Portland in every respect.
4. Specified by eminent architects.
5. Used by U. S. and foreign governments.

The artistic possibilities of Medusa White are unlimited. Shipments are being made to all parts of the world. If your building material dealer does not handle Medusa, write us.

Request Catalog and Free Sample

Sandusky Portland Cement Co.
 Engineers' Building, Cleveland, Ohio

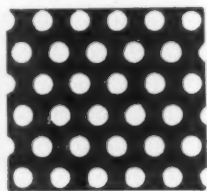
THE IMPROVED EQUIPMENT CO.

80 Wall Street, New York City

COMBUSTION ENGINEERS

DESIGNERS AND BUILDERS OF

COMPLETE GAS PLANTS GAS BENCHES
 LIME BURNING PLANTS GAS PRODUCERS
 SPECIAL INDUSTRIAL FURNACES



"HENDRICK"
PERFORATED STEEL SCREENS AND
ELEVATOR BUCKETS

—STAND THE TEST—

Let us figure on your requirements.

HENDRICK MFG. CO.
 New York Office, 30 Church St. CARBONDALE, PA.

The Fuller Engineering Co.

Designing, Constructing and Operating Engineers

Analytical Chemists

CEMENT AND HYDRATED LIME PLANTS A SPECIALTY

Offices: Allentown Natl. Bank Bldg., Allentown, Pa.

DIRECT HEAT
DRYERS

FOR

**Bank Sand, Glass Sand,
 Rock, Clay, Coal, Etc.**

All Mineral, Animal and Vegetable Matter

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue

—S. C.—

American Process Co.
 68 William St., NEW YORK CITY

ROBERT W. HUNT JNO. J. CONE JAS. C. HALLSTED D. W. McNAUGHER

ROBERT W. HUNT & CO., ENGINEERS
INSPECTION CEMENT & REINFORCING STEEL
 CHEMICAL AND PHYSICAL TESTING

Office and Laboratories
 Chicago, Montreal New York, San Francisco Pittsburgh, Toronto St. Louis, Mexico City London, Seattle

Lime Kilns
Hydrated Lime Plants
Portland Cement Plants

RICHARD K. MEADE

Chemical, Mechanical and Industrial Engineer

202 N. Calvert Street, BALTIMORE, MD.

Cement Tests, Chemical Analyses
 Reports on Mineral Properties

F. L. SMIDTH & CO. 50 Church St. NEW YORK

SPECIALISTS IN

Engineering Cement Works

—AND—

Cement Making Machinery

REPORTS DESIGNS ERECTION
 Stone Crushing Plants Sand and Gravel Plants
 Quarry Operations

PRESTON K. YATES, Consulting Engineer **SHELDON S. YATES**
 120 BROADWAY, NEW YORK CITY Associate

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XVI.

CHICAGO, OCTOBER 22, 1915.

Number 12

PUBLISHED SEMI-MONTHLY.

DEVOTED TO

Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialties—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.

EDGAR H. DEFEBAGH, Pres.

Seventh Floor, Ellsworth Bldg., 537 So. Dearborn St., Chicago, Ill., U. S. A.
Telephone: Harrison 8086, 8087 and 8088.

EDITORS:

EDGAR H. DEFEBAGH. FRED K. IRVINE.

GEORGE A. OLSEN, Editor Retailers' Section.

H. F. AKE, Secretary.

DRUSUS H. NICHOLS, Advertising Manager.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products and Building Materials his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions.....\$1.00
In all other Countries in the Postal Union.....\$1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Published on the 7th and 22nd of each month.
Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.
Copyright, 1915, by E. H. Defebaugh.

An exceptionally wet summer in practically every section of the country is making the strongest kind of an argument for good roads improvements in the very localities where bumper crops at high prices have provided the means more plentifully than ever before. All such naturally supplied arguments should be capitalized during the coming winter and completed into the shape of road contracts for the early spring. Intelligent activity from this time on would make the biggest crop of road contracts for 1916 that was ever known. Let's go to it.

Quarry operations this season have had more to do with excess of water in the quarry pits than ever before. Pump outfits have been running constantly in many places for months, and the pumping expense has made an extra item with nearly every operation. Yet we have not seen any evidence of charging this extra cost to the consumer who gets the permanent benefit of the product. The man who operates the crusher is indeed long suffering and always willing to absorb extras to such an extent that he is likely sometimes to absorb himself.

The time honored method of sewage disposal consisting of running the waste and offal of cities and towns into natural streams or artificial channels leading to natural streams has about reached a period. Nowadays this process is called the "pollution of streams," and that is an offense against the body politic. More scientific methods of sewage disposal have come and made good. The lakes, rivers and smaller streams will soon be relieved of the pollution offense. That old canard to the effect that a running stream purges itself in ten miles or less is threadbare. Nobody ever really believed in it, but nevertheless no end of polluted water has been used for drinking purposes with no better explanation.

Motor trucks for the prompt delivery of building materials have brought about both economy and improvement of service. The bigger trucks for delivering crushed rock, sand, cinders and similar materials has opened opportunities for the expansion of delivery which was not capable of consideration until this type of machine was recently perfected. Think this over, Perhaps it applies with wonderful possibilities to your own business activities.

The field for the promotion of sales to the retail trade is by no means exhausted by the producers of hydrated lime. With all the promotion, public, private and personal our statistics show that less than one-third of the recognized dealers of the United States have as yet bought their first carload. True, all of the big concerns and the most successful smaller dealers have adopted hydrate and are practically buying lime in no other form. But if it were possible to sell one carload to half of the remaining two-thirds of the recognized list the entire production of all the mills would be absorbed at once. Statistics show that while all of the work has counted, still there is a great deal more of the same kind to be done—and a little bit more so.

The four great staples of the building material industry, cement, lime, plaster and clay goods, constitute a line of indispensable commodities for every community in which the local dealer is an indispensable factor to the successful organization of progressive business. The manufacturers of all these commodities have got to secure the co-operation of a local man at the delivery end because they can only ship such goods economically upon the carload basis. Almost 100 per cent of the consumers of such materials buy small quantities, for much less than one per cent of the building jobs or other permanent improvements require a whole carload of any one kind of material. One hundred bags of Portland cement, 60 bags of hydrated lime, 35 bags of plaster, 20 joints of sewer pipe with three elbows, is about the average contractor's order for one building job. In the smaller communities which constitute an enormous preponderance of the entire distribution of these staple materials, the average quantities required is about half the figures just quoted. There is no way for a manufacturer to sell such orders direct to the consumer because the difference in the freight rate of an LCL delivery over that of a carload delivery to the same point would amount to a greater difference than the margin of profit which the local dealer charges for the responsibility of handling the account and the accommodation of making the delivery at the job. The position of the dealer is secure in building material lines because consumers cannot afford to buy in the unit in which the producers are compelled to operate. Yet dealers are by no means serene in the enjoyment of the knowledge of this fact, and are always suspicious of some mail order scheme or motor truck competition which may destroy the volume of business which alone makes their operation successful or possible. These conditions are now much better recognized than formerly and is bringing about a broader, a more liberal co-operation between the manufacturers of the four great staples and the local dealers. There never was a plainer path of success marked out between the producing and the delivering branches of important industrial enterprises. It is gratifying to note this improvement after so many years of effort in bringing these two branches together upon an amicable basis.

WITH YOU and ME

The Thomas Moulding Brick Co. is enlarging its Chicago headquarters.

W. T. Blackburn, an engineer of the Dunn Wire-Cut Lug Brick Co., was a Chicago visitor Oct. 19.

Edward King, a well-known retailer of Freeport, Pa., was calling on his lumber friends in Pittsburgh last week.

The Penn Allen Portland Cement Co. has been elected to membership in the Master Builders' Exchange of Philadelphia.

W. S. Diggs was the speaker at the Pittsburgh Builders' Exchange luncheon on Oct. 14, his topic being "The Workmen's Compensation Act."

James A. Hogan and L. D. Binyon, of the S. S. Kimbell Brick Co., Chicago, are visiting brick plants in Ohio.

H. J. Seaman, of Catasauqua, Pa., has resigned as general manager of the Atlas Portland Cement Co., because of ill health, and will be succeeded by A. Gilbert Croll, of Allentown.

F. W. Lucke & Co., Chicago representatives of paving brick firms, is moving across the hall to larger and lighter quarters in the Chamber of Commerce building, Chicago.

Fred Von Siebenthal, formerly connected with the contractors' supply and equipment firm of Warren Brothers, Louisville, Ky., has become city salesman for the Central Paint & Roofing Co., one of the large local jobbers of prepared roofings.

Announcement has been made of a change whereby Lewis N. Wesch, formerly with Thomas L. Barret, in the contractors' supply and equipment business, Louisville, Ky., has become city salesman for the Tyler Building Supply Co.

Richard K. Meade, chemical mechanical and industrial engineer, of Baltimore, Md., has been retained by the D. M. Bare Paper Co., Roaring Springs, Pa., to prepare plans for and superintend the construction of a lime recovery plant.

Oscar L. Meek, one of the owners of the Marysville Sand Co., Marysville, Cal., has sold his one-third interest in the company to W. O. Wood, of Meriden, Cal. The company is shipping out an average of eight cars of sand daily, chiefly to Sacramento.

The headquarters of the West Lake Brick Co., hitherto located at Wellington, Ont., have been transferred to Fort Erie, Ont., where the company is to engage in the brick forwarding business. It is understood that the company is to greatly increase its Fort Erie interests.

R. G. Cornell, for the last three years Portland, Ore., manager for the Meese & Gottfried Co., has accepted the position of sales manager for the Hesse-Martin Iron Works. He will have charge of the selling of that company's line of conveying, crushing and classifying machinery, with especial attention to the sand and gravel industry.



CAPT. GEORGE M. THOMPSON, CANADIAN ENGINEERS' CORPS.

George M. Thompson, so well known to many of the readers of ROCK PRODUCTS AND BUILDING MATERIALS as the Chicago representative of the Canada Pebble Co., Ltd., Port Arthur, Ont., Can., for several years, will be recognized in the accompanying portrait, Captain George M. Thompson of the engineering arm of the service of the Canadian com-

tingent of the British army. These are busy times for military men and the engineers are getting a full measure of service. Captain Thompson is doing his part and rejoicing in activity of the great struggle of nation and of humanity.

The John D. Owens & Son Co., Owens, Ohio, manufacturer of lime and limestone products, since 1850, is sending a souvenir pencil to its friends and customers which is useful as well as ornamental. Incidentally, it is capable of writing a very nice order, which Uncle Sam would be glad to deliver at the factory.

Charles A. Millar, ex-president of the Canadian National Clay Products Association, president of Prices Limited and vice-president of the Price-Cummings Co., prominent brick manufacturers, Toronto, has been appointed inspector of clay products plants in connection with the carrying out of the provisions of the Workmen's Compensation Act in Ontario.

Caldwell Settle, son of John M. Settle, secretary-treasurer of the Ohio River Sand Co., Louisville, Ky., was recently married to Miss Elizabeth Sheild, of that city. The young couple eloped to Elizabethtown, Ky., in a motor car, belonging to Mr. Settle. The groom was 22 years of age, while the bride was 17. The young couple went to Chicago from Elizabethtown.

Counselor Marvin A. Spaulding, of Trenton, N. J., has been elected treasurer and a director of the Newton Paving Co. He succeeds Frank A. Barnaby, of Philadelphia, and has already entered upon his new duties. Mr. Spaulding will continue his law practice and will also act as secretary to Congressman Hutchinson. Richard B. Newton was reelected president and general manager of the company.

The Indiana Crushed Stone Association is sending out to all its contractor friends a real contractor's pencil. It's the kind that makes a good mark on a rough board or will even do for a memorandum on a flat slab of rock. Of course, the pencil carries an advertising feature, which suggests that the Indiana Crushed Stone Association believes in macadam roads and recommends the material produced by its members for such purpose.

The Salmen Brick & Lumber Co., New Orleans, La., has a branch office on Julia, near Howard street, that city. In this office there is a safe, and in the safe is seldom kept the proceeds of sales over night. Last week some enterprising thieves entered the office, moved the safe to an open lot some distance away and broke it open. They discovered nothing but papers of value only to the officials of the company. The safe was found by the police on the following morning.

Several new and important building material displays have recently been added to the floor of the New Orleans Contractors' and Dealers' Exchange. One that is attracting a good deal of attention is Scanlon's cement roofing tile, a New Orleans product recently put on the market by Edward F. Scanlan. The Fritz Jahncke Co., Inc., has a display of face brick and tile, plain and glazed tile and sewer pipe. The Salmen Brick and Lumber Co. has a similar display.

Scheduled Shows and Meetings.

Dec. 7-8.—The Sand Lime Brick Association, annual meeting, Republican House, Milwaukee, Wis.

Feb. 8-9, 1916—Chamber of Commerce of the United States, annual meeting, Washington, D. C.

Feb. 12-19, 1916—Ninth Chicago Cement Show, Coliseum and Armory, Chicago, Ill.

Feb. 15-16, 1916—Ohio Builders' Supply Association, annual convention, Cleveland, Ohio.

Feb. 15-17, 1916—Illinois Lumber and Builders' Supply Dealers' Association, annual meeting, Sherman hotel, Chicago.

Feb. 15-18, 1916—Second National Conference on Concrete Road Building, Auditorium hotel, Chicago, Ill. J. P. Beck, 208 South La Salle street, Chicago, secretary.

Feb. 16-26, 1916—Complete Building Show, Coliseum, Cleveland, Ohio.

Feb. 17-19, 1916—National Builders' Supply Association, annual convention, Statler Hotel, Cleveland, Ohio.

Feb. 29-March 4, 1916—Mid-West Cement Show, tenth annual, Omaha, Neb.

Carl C. Van der Voort, secretary of the Pittsburgh Lumbermen's Mutual Fire Insurance Company, reports that retailers in the lumber business are feeling considerably better than a few months ago. His company has had a very successful year and is broadening its activities in a number of directions this fall.

J. W. Windsor, secretary of Houston Bros. Co., Pittsburgh, Pa., was honored by having his photo appear in the Pittsburgh Dispatch Oct. 11 among the men prominent in the Pittsburgh business world. Mr. Windsor hailed from Grand Rapids, Mich. He came to Pittsburgh 13 years ago, representing the Alpha Cement Co. About 10 years ago he went with the Houston Bros. Co., a big builders' supply firm. He is now secretary and sales manager of that concern and is one of the most popular builders' supply officials in western Pennsylvania. In matter of knowing his business and knowing the trade there are few men in the state who equal—and perhaps none who excel—Mr. Houston in ability.

W. M. Harsh, of Sandusky, O., for many years manager of the Kelley Island Lime & Transport Co.'s plant at Marblehead, has become identified with the Rocky Ridge Lime & Stone Co. with the position of general manager. The company is preparing to install a plant for the production of hydrated lime, and Mr. Harsh will take charge. Extensive additions to the stone-crushing equipment of the company are also planned in order to enable it to meet the demand for street construction material. A steam shovel and a locomotive crane will be added to the equipment.

San Francisco is to have a permanent building material exhibit along the same lines as the Chicago exhibit and will be open to the public on Nov. 1. Building materials of all kinds will be shown in samples. It is to be a permanent show room for the convenience of the public and for the consultation of builders and decorators with their customers in the selection of building and interior furnishing ware. The project has received the hearty endorsement of the architects and engineers of San Francisco.

The Society Advocating Fire Elimination, better known as the S-A-F-E, has combined with the Standard Building Material Manufacturers' Association of New York. The S-A-F-E has from its beginning put emphasis upon the need of particular effort in the field of home building, while the parallel New York organization worked principally for consistent fireproofing in larger structures and the use of approved safety devices and equipment. By this combination the entire field of building operations is covered and the talent that has been specialized upon these two branches are brought together.

A. Gilbert Croll, Allentown, Pa., formerly assistant general superintendent of the Atlas Portland cement mills, located at Northampton, Pa., Hudson, N. Y., and Hannibal, Mo., has been appointed general superintendent of the Atlas company, with offices at No. 30 Broad street, New York City. He succeeds H. J. Seaman, of Catsauqua, who has been superintendent since the organization of the company, and who recently resigned on account of ill health. The advancement of Mr. Croll is certainly merited. His first position with the company was that of a draughtsman about fifteen years ago, and by dint of hard labor he has risen to his present position. He is a graduate of Cornell University and is a recognized authority on engineering problems.

H. L. Lewman, of Louisville, president of the National Association of Builders' Exchanges, left Louisville last week for San Francisco, where he will be one of the principal speakers at the exercises to be held during Builders' Week at the Pan-

Knowledge and Wisdom.

Great is the fame of being wise, and every virtue in it lies. The man who's won that fair renown is loved and honored in his town; he gets new tributes every day, and always has the right of way.

You say one man is smart and slick; you say another is a brick; a third's a hustler or a jo—for thus our modern phrases go. But all such compliments are cheap; they are not worth ten cents a heap. But when you say a man is wise, you praise him highly; it implies that he is governed by his brain, that he is strictly safe and sane.

Oh, wisdom is the greatest thing that man can praise or hard can sing. Ambition makes its dizzy breaks, and Energy has sad mistakes, and Folly leaves a trail of grief, and Rashness makes successes brief. But Wisdom calmly, firmly walks, and dodges snares and shuns the rocks; its soothes a foe and gains a friend, and always gets there in the end.

And what is Wisdom, starry-eyed? It's mere knowledge, well applied. The man who studies and observes gets wise to all of Wisdom's curves. He profits by the printed lore, and keeps ten thousand facts in store, and when a crisis comes along, he is secure from going wrong.

Experience of other men, as set down by the candid pen, has always been the safest guide, to keep one's feet from straying wide. So business men of all degrees, who wish for peace and mental ease, must read trade papers' helpful lines, and learn to shun the danger signs. In them the tree of knowledge grows; in them specific knowledge flows; not scattered facts of doubtful good, but truths for your own neighborhood.

Whatever branch of business yours, such knowledge present help assures. Without the journal of his trade, the quarry man's good prospects fade,

ama-Pacific Exposition. His subject is "National Organization and Its Needs." On his way westward Mr. Lewman delivered a number of addresses. One of these was in Des Moines, where he talked before the Chamber of Commerce in the afternoon and the State Builders' Association at a banquet in the evening. He also spoke before the Omaha Builders' Association. Mr. Lewman also represents the Louisville Builders' Exchange at the meeting.

E. M. Tate, secretary and general manager of the Pittsburgh Builders' Exchange, who enjoys the confidence and good will of all of the builders' supply interests of that great city, as well as the contractors, engineers and architects who compose the building community of Pittsburgh, was married on Oct. 6 to a Pittsburgh lady, Miss Florence M. Conner, and they are now making an extensive tour of the Panama-Pacific Exposition and the West as a honeymoon trip. The members of the Builders' Exchange have got together in their absence to arrange for a very handsome wedding present to emphasize their appreciation of the very good work Mr. Tate has done in the builders' organization under the motto of "Business with Members Preferred." Mr. and Mrs. Tate will be at home after Dec. 1 at 1329 Beechview avenue, Beechview, Pa.

BUSINESS MEN TO DISCUSS WAR CONDITIONS.

As a forerunner of what is expected to be the most important gathering in the history of the Chamber of Commerce of the United States, comes

the merchant has back number stoves, the baker man distorted loaves, the cement man has weeping eyes—so take the paper, and be wise!

WALT MASON.

(Copyright, 1915, M. B. Kovnat, Chicago.)

How Did You Die?

Did you tackle that trouble that came your way
With a resolute heart and cheerful
Or hide your face from the light of day
With a craven soul and fearful?

O a trouble's a ton, or a trouble's an ounce,
Or a trouble's what you make it,
And it isn't the fact that you're hurt that counts,
But only, how did you take it?

You're beaten to earth? Well, well, what's that?
Come up with a smiling face.
It's nothing against you to fall down flat,
But to lie there, that's disgrace.

The harder you're thrown, why, the higher you bounce;

Be proud of your blackened eye!
It isn't the fact that you're licked that counts;
It's how did you fight—and why?

And though you be done to death, what then?
If you battled the best you could;
If you played your part in the world of men,
Why, the Critic will call it good.

Death comes with a crawl, or comes with a pounce,
And whether he's slow or spry,
It isn't the fact that you're dead that counts,
But only, how did you die?

—Edmund Vance Cooke, in the
Fort Wayne, Ind., News.

the announcement that the fourth annual meeting will be held in Washington, D. C., Tuesday, Wednesday and Thursday, Feb. 8, 9 and 10, 1916. Owing to the fact that because of the war this is a critical period in world business, it is predicted that there will be an unusually large attendance.

Consider Commercial Legislation.

Business men all over the country, it is said, find it next to impossible to forecast from month to month—scarcely even from day to day—the changes which affect business. Under those circumstances Secretary Goodwin, of the National Chamber, believes every business man in the country who is able to do so will want to attend this great business convention, if only for the reason that Congress, which has so much important business legislation ahead of it, will then be in session.

Business Delegates From Every State.

John H. Fahey, of Boston, president of the organization, will preside. Every commercial body affiliated with the Chamber of Commerce of the United States—and there are now nearly 700 of them, representing not only every state in the Union but Alaska, Porto Rico, Hawaii and the Philippines—is urged in connection with the meeting to provide for the attendance not only of a full number of the delegates to which it is entitled, but of a like number of alternates as well. There will be representatives present from the American Chamber of Commerce in Paris, Rome, Milan, and even as far away as Constantinople. Already extensive plans are under way to make the convention memorable, and there are early indications of a strong program. As usual, the National Council will assemble a day in advance, which falls this year on Monday, Feb. 7.

The RETAILER

Put an End to Juggling Bids.

There is a well-founded complaint among the dealers in building materials and supplies, occasioned by the tactics of contractors who, particularly of late, have been wont to "peddle" bids made by supply dealers, a truly pernicious practice and one which, in the end, can but prove a boomerang for the contractor himself, as eventually it must bring about counter practices, in self-defense, on the part of the supply dealers, which will produce a condition of affairs which can but result in injury to both of these factors in the industrial world.

It is a practice second only to, closely akin to, and conducive of the price-cutting evil, says "Building Review," the official organ of the New Orleans Contractors' and Dealers' Exchange. The contractor calls for and receives bids from the supply dealers, then, instead of awarding his contract promptly to the dealer whose offer is lowest, taken all around, hawks the prices bid around from one dealer to another, in an endeavor to "jew-down" the bidders. In other words, if Smith & Co.'s bid on one item of materials, say cement, is lower than the price bid by Jones & Bro. on the same item, but Jones & Bro.'s bid is lowest on several other items, the contractor tells Jones & Bro. of how much lower Smith & Co.'s bid on cement is, and seeks to induce Jones & Bro. to come down to Smith & Co.'s bid on that article. Vice versa, the contractor will show Smith & Co. how much lower Jones & Bro.'s bid on other articles is and seek to induce Smith & Co. to come down to Jones & Bro.'s bid.

This is eminently unfair, in fact is to be classed as an evil as injurious as the price-cutting practice to which it invariably leads and therefore practically amounts.

Contractors are constantly contending for fair-dealing, pointing to the necessity of carrying-fair in all dealings in the industrial world, and particularly in the world of building construction, and yet there are many of them who indulge in this pernicious practice.

Eventually it can but result in the supply dealers adopting the only possible self-defensive method. The dealer must make a living profit, and if the practice of "peddling" bids is persisted in and continues to grow as it has grown, the dealers will get together and agree to set their prices at a mark which will permit of a reduction and still allow them a fair margin of profit. All of this utterly unnecessary jockeying and juggling which, after all, nets no one any gain, could be averted if the contractor would, as he should, award his contract for materials promptly to the dealer whose bid he finds to be lowest, taken all around. The sooner an end is put to the practice in question, the better it will be for all concerned.

Whitnall Organizes New Milwaukee Firm.

The Whitnall Coal & Supply Co., Milwaukee, Wis., with Edward F. Whitnall, well-known building supply man of that city, at the head, has been organized and has made its debut in the Milwaukee trade. Offices have been opened at 217 Caswell building and the new concern is meeting with a brisk business.

The new Whitnall concern was incorporated with

a capital stock of \$50,000, the incorporators being Edward F. Whitnall, C. H. Swan, Louis Boehne and J. F. Donges. Officers were elected last week as follows: President, Edward F. Whitnall; vice-president, Sumner T. Whitnall; secretary, John T. Whitnall; treasurer, Charles H. Swan; directors, Harold E. Whitnall and J. B. Whitnall. The sales representatives include William L. Gradt, Robert S. Fischer and Alderman Robert J. Kempf.

All the members of the new Milwaukee concern have had wide experience in the building supply and coal field. Edward F. Whitnall, the president, recently resigned as manager of the Pennsylvania Coal & Supply Co.; J. B. Whitnall and Charles H. Swan have had 25 years of experience in the building supply field, and a specialty will be made in



EDWARD K. CORMACK.

building materials of all kinds. John T., Sumner T. and Harold E. Whitnall, all nephews of Edward F. Whitnall, are enterprising young men, who have much experience to their credit.

F. B. Harriman, for 30 years connected with the Illinois Central Railroad Co., the last five years of which he was general manager, has been elected vice-president of the Pennsylvania Coal & Supply Company of Milwaukee, which recently announced a plan of reorganization. The company will now pay particular attention to the wholesale phase of the building material and coal business. Mr. Harriman succeeds W. E. Caldwell. Frank W. Fellenz, also vice-president of the company, has been placed in charge of all sales of the Pennsylvania. Mr. Fellenz has been general manager of the coal sales department of the concern for a number of years. John C. Post has been reelected secretary and treasurer of the concern.

Zerrenner Brothers, of New London, Wis., recently received several large contracts to furnish brick for several projects at Rhinelander, Wis. The firm is shipping 35 carloads of their brick to the northern Wisconsin city.

Cormack Heads New Concern.

Edward K. Cormack, former president of the National Builders' Supply Association, and until recently vice president and manager of sales of the Wisconsin Lime & Cement Co., has severed his connection with that organization and organized the Consolidated Co. at Chicago with a capital of \$50,000. He has secured a yard on the south side which is located on the Pennsylvania railroad and already laid out in one of the most advantageous locations in the city of Chicago.

The yard has track facilities for 20 cars and a fair-sized warehouse as well as an open shed 200 by 50 feet. In addition to this, a larger warehouse is now being built. The yard secured by Mr. Cormack is one formerly used by William Krug & Son and contains 60,000 square feet, its dimensions being 600 by 100 feet.

Mr. Cormack's new concern will retail everything in the building material line carrying a full line of concrete, masons' plastering and paving contract supplies. The energies of the new firm are being devoted to getting the yard into good shape and expectations are that the concern will be ready for delivery of materials by Monday, Oct. 25.

In the territory adjacent to the yard of the new company, improvements on a large scale are being made in the building line. Quite close to the yard are a number of large apartments now in course of erection with bright prospects of a continuance of this class of building construction.

When asked his reason for leaving the Wisconsin Lime & Cement Co., Mr. Cormack said, "When a hive is full of bees, they swarm and make a new hive." The expression is typical of the man and laconically states his views on expansion. He is co-operating with two former salesmen of the Wisconsin company, namely, J. J. Cronin, who has been confining his efforts largely to the sale of lime, plaster and cement, and George Doerk, who has been specializing in the sale of brick. Both of these men are familiar with the territory in which the yard is located and it is believed their acquaintanceship with the trade will have a great deal to do with the success of the new venture.

Mr. Cormack's resignation from the largest retail concern in Chicago was announced on Oct. 19 and in the few days since that time his friends have demonstrated their sincerity by congratulations and promises of their orders. He states that right now he is busy dodging contractors who want to give him orders, the materials for which have not as yet arrived. The manufacturers in various parts of the country have rushed their various departments in order to send materials to the new firm, because they realize the progressive ideas and sterling character of the man with whom they are about to do business spells success and that he will not be contented with a one-yard concern more than a few months. The fact is that at the present time Mr. Cormack and his associates have an option on a yard located on the north side as well as another located on the west side of Chicago.

Speaking of the activity necessary in the opening up of a new yard Mr. Cormack said, "I find that my legs and the days are not long enough."

Mr. Cormack had been with the Wisconsin Lime & Cement Co. for a period of 11 years, his original duties being that of a bookkeeper.

The Waddell Lumber & Supply Co., Manistique, Mich.; capital, \$40,000.

Helping the Dealer Develop

BY FRANK ADAMS MITCHELL,

Vice-President and General Manager, Ceresit Waterproofing Co., Chicago.

A few years ago when informal hanging was popular, a colored man was the principal performer at one of these parties, and was asked if he had anything to say before his departure. He replied, "I got jest one final word to say, and dat is dat dis is suttlenly goin' to be a powful lesson t' me."

It often requires a lesson with a certain amount of force behind it to make men see the error of their ways. The manufacturers' and dealers' situation is critical enough to warrant stringent measures.

I do not mean to infer that either side is necessarily all wrong and, in fact, there are so many arguments tending to show the righteousness of each side that I do not want to be understood as taking issue one way or the other. There is no doubt, however, but what a discussion of this question would be productive of good and possibly may start something along the right lines.

The dealers are facing a condition which is serious, to put it lightly. So many manufacturers are eliminating the dealer entirely and through general publicity, by means of national advertising mediums and the direct route through the mail, are creating a demand for their materials, which eventually may make it profitable for them to do away with the dealer and sell their products direct.

Some manufacturers are showing an inclination towards this method. Of course it is true that only the larger manufacturers can follow this process exclusively, because it entails the expense of locating offices geographically situated to control the whole United States. Nevertheless, the tide is running that way, and it is high time for the dealers to get busy and see that it does not work to their disadvantage.

One of the reasons why manufacturers are inclined to go after business direct is that they do not receive the proper cooperation on the part of dealers. This is the complaint of practically every manufacturer. It does not, of course, hold good in every case because there are many dealers who have as well organized companies and sales departments as the manufacturers whom they represent.

The great majority of dealers, however, adopt the attitude that they are so well known that they do not have to advertise extensively; they do not have to employ highly trained salesmen to market their goods and, in short, they do not have to seek business because they feel that they are so well known that business just naturally flows into them. This fact was demonstrated about a month ago when the writer talked to a dealer in one of the Iowa cities who made a statement just about as outlined above.

It seems a shame to take up space showing the fallacy of such an argument, but as long as dealers feel that way it shows the need of education. No matter what you sell, where you sell it or how, selling efficiency is the first attribute to success.

The dealer who works along the line of least resistance, believing with smug complacency that all the desirable business must come to him, will wake up some morning to find some energetic young man opening up an office across the street, going after business personally, sending out folders, writing letters, advertising and showing signs of life in many ways. And, believe me, he will get it. The law of compensation is direct and sure. Energy properly expended always brings returns. In selling goods, that energy is converted into well-written letters, attractive folders and efficient salesmen.

If what I have said is correct, there is a good deal of meat in the manufacturer's complaint that he does not get cooperation from the dealer and, further, most manufacturers are willing to cooperate by sending out literature for distribution, turn-

ing inquiries from the dealer's territory to him for attention and doing direct advertising.

Now, is it true that all manufacturers cooperate? They all claim their willingness and desire to do so, but do they really do it? Unfortunately, no. A great many dealers do not get cooperation just when they need it the most, and that time is when the manufacturer refuses for one reason or another to protect the dealer on sales coming direct from his territory, and, regrettable as it is, it is a constant source of irritation to the dealer.

If manufacturers would endeavor to get a little closer to their dealers, differences would soon fade away. The manufacturer sitting in his office, depending only upon correspondence, does not get the right viewpoint. There is only one way he can get perspective, and that is by getting acquainted with the dealer, finding out his needs, difficulties, problems and methods. In other words, "get under his hide." He soon learns that Mr. Dealer is human, full of the red blood of energy and working to the same end as himself.

So far we can arrive at two conclusions—first, that the average dealer lacks the essence of scientific management in the selling end of his business; second, that the average manufacturer believes in cooperation, but fails to put his beliefs into practice.

It is self-evident that the educational work should be done with the dealer, because if he has an efficient selling organization, properly directed, he can not only ask but compel the manufacturer to give him the right kind of assistance. He can prevent sales being made direct into his territory from which he receives no profit; he can make it impossible for a manufacturer to put any plans into practice whereby the dealer would be eliminated, and, what is of the most importance, he can double his business, increase his earnings and secure more desirable accounts.

Manufacturers should steal a march by making it their business to begin such a campaign of education. There is only one way, and that is to begin. The word cooperation has been used so flippantly that it is threadbare and shopworn. Every manufacturer advertises that he will cooperate. You read nothing but cooperation and service in every piece of advertising matter you pick up.

It does not make any difference whether the manufacturer really does what he claims or not; he likes to talk about it and make himself believe that he is doing more for his dealers than any of his competitors. If the average manufacturer would analyze his advertising matter, condense it into horse sense and then put it in the mail, properly addressed, and to the proper list of prospects, he would by that act be giving his dealers real cooperation.

The next step should be to study the needs and methods of the dealers and analyze each individual case, and make it his business to assist that particular dealer in a way that would best produce the greatest amount of business.

Perhaps business is not just what it should be; perhaps we have had too much war talk. We can "perhaps" a good many things; but we cannot get away from the actual fact that we must meet conditions as we find them. If every dealer and every manufacturer will make an honest effort to get closer together and work out their problems jointly, the result will be an improvement in every phase of their relationship.

The City of Winnipeg is considering the advisability of installing a gas system at a cost of over \$2,500,000.

Brevities of the Retail Field.

The Western Reserve Lumber Co., of Warren, O., one of the most aggressive retail concerns on the Western Reserve, is building a storage house 151 by 140 feet with a B. & O. switch at a cost of \$12,000. This will give it much better equipment for storing and handling materials for its rapidly increasing trade.

Building material men were interested and took a prominent part in the elaborate ceremonies on Oct. 9 incidental to driving the first pile in New Orleans' new municipal grain elevator. It was originally planned to hold these ceremonies on Sept. 29, but the tropical storm arose on that day and prevented the exercises. The building material men, in assisting in driving the pile, said: "This is New Orleans' answer to the storm." A large representation from the New Orleans Contractors' and Dealers' Exchange was present, many of the members of which are supply men. The occasion was a vastly important one, inasmuch as New Orleans and the South are expected to receive numerous benefits from the state-owned utilities, including the elevator and five-million-dollar cotton warehouse system.

Amos S. Eby, retailer of building materials at Chambersburg, Pa., reports having accomplished a record-breaking business during the summer months. Mr. Eby stated that he is more than satisfied with the volume of business transacted at his establishment, the more so because every indication was that the summer months would prove to be of a very quiet nature. He declared that his business has been steadily increasing and that there is every prospect that it will become necessary to enlarge in the future in order to take care of this welcome increase.

Allen Tupper, New Orleans, La., one of the largest operators in building materials in the Crescent City, is furnishing the sewerage and water board with sewer pipe that is being installed in several suburban sections. Mr. Tupper has held the sewerage and water board contracts for 10 years.

The N. J. Braun Lumber Co., which recently sold its yards at Reedsburg, La Valle and Cazenovia, Wis., have purchased the business of the Oscar A. Anderson Lumber Co., at Jefferson, Wis., a large lumber and building supply concern. N. J. Braun will be in charge of the Jefferson business.

Edwin Smith, Baltic and Tennessee avenues, Atlantic City, N. J., furnished sand, lime, plaster and cement to the various sub-contractors of the work on the Hotel Traymore, which was recently completed. He is also the sole agent for the Keystone wall plaster, which material was used exclusively in the construction of the hotel. The Smith business house was established in Philadelphia in 1822, and the Atlantic City branch was opened in October, 1880, by the father of the present proprietor. At this time the establishment is enjoying the confidence of large contractors from several parts of the city. Many of the large buildings now standing in the seashore resort were furnished with material from this yard, which was the only local establishment of its kind for quite a number of years.

The Consolidated Building Material Co. has just been organized at Norfolk, Va., with a maximum capital stock of \$50,000 and a minimum of \$1,000, for the purpose of engaging in the lumber business. C. L. Clark is president of the company, and W. L. Locke is secretary and treasurer. A charter has been obtained.

KANSAS CITY BUILDING BEING DEFERRED.

The bad weather of the past season and the local as well as national financial situation have impaired the building situation, and prospective builders have not been able to make up their minds to go ahead with work. Some large projects have already been definitely postponed until the first of the year.

NEWS of the TRADE

Chicago Prospects Grow Brighter.

During the two weeks ending with Oct. 16 there were in Chicago a total of 429 permits issued for the erection of buildings at an estimated cost of \$5,069,850. This is a total of 161 permits and \$2,123,845 more than a similar period of a year ago. During the two weeks of 1914 there were 268 permits issued with a valuation of \$2,945,995. In addition to the many structures for which permits have been issued numerous announcements are being made for building projects of a more or less important character in all the outlying parts of the city. A feature of the building situation of Chicago at the present time is a large number of fair-sized apartment houses in the course of construction and others for which permits have been asked. A number of these apartments when completed will have cost more than \$100,000. One venture, which really calls for two handsome business and apartment structures, will run into \$162,000.

Building material dealers of Chicago say that business with them at present is about normal, but they are hoping for a late fall and an open winter in order that a number of the projects, now in the course of construction and about to be commenced, will be completed. This will naturally call for large quantities of brick, cement, plaster and kindred materials and will help to make up for the volume lost early in the season when Chicago was affected like other cities by the withholding of funds which should have gone into new structures. Prices are low with the possible exception of cement, which has recently been advanced.

Small Orders Help Cincinnati.

Cincinnati, Ohio, Oct. 19.—As the season draws near its duller part, the amount of business coming to the hands of local material men is dwindling, logically enough, to smaller proportions than has been the case for some time, although deliveries on orders already placed, and a fair volume of work on small jobs, serve to keep things moving. Prospects for lettings during the remainder of the fall and winter were never better for the season, and the feeling is general that if there is an open winter business will be extremely brisk.

One of the biggest contracts of the current season, that for the construction of the main buildings of the new East High School in Hyde Park, was recently awarded by the board of education to the Ferro-Concrete Construction Co. on its bid of \$455,459. Work will begin in a comparatively short time, which means that some of the material men are going to have some excellent business on which to start the winter season.

The Moores-Cooney Co. reports that the characteristic trend of the season, toward work of the smaller sort, has continued up to this time, residence jobs not involving any great amount of material being the usual run of business handled by the company. Several good-sized contracts are in sight, however, which are not yet ready for announcement, and the company will probably have deliveries running for several months to come on work of this sort.

The Pursell-Grand Co. has experienced the same quiet noted by other building material concerns lately, according to E. F. Grand, an officer of the company. Mr. Grand is optimistic regarding future business, however, regarding the present inactivity

in the building trades locally as being only normal, and pointing to the number of good-sized jobs at present under construction as proof of the fact that there has really been no let-up in construction.

Pittsburghers Busy Making Deliveries.

Pittsburgh, Pa., Oct. 19.—The splendid weather of the past few weeks has greatly helped outside operations. For this reason retailers have had more to encourage them in the way of deliveries and also of new orders. The total of business, of course, is lower than during the summer months, as many contracts were practically finished in August and September. There have also been smaller deliveries on street work. The filling in of the streets below Liberty avenue to flood level is nearly completed. Work on the south side streets has also been pushed along rapidly, and other big projects in the city have reached the point where most of the purchases for materials have been completed.

In the city limits comparatively little new building has been started. There are some towns, however, throughout the Pittsburgh district where steel and coal and coke operations are now on at full speed, where quite an amount of building is being arranged for this fall. Many corporations are finding it necessary to build large numbers of houses for their increasing list of employees. This will figure as one of the most encouraging aspects of spring trade.

The retailers in the city have probably done about 75 per cent as much business as in 1914. They are all hopeful, however, and believe that with business improving steadily, as it is now, there must be a great gain in their line next year. Nothing in the way of a boom is expected with a presidential election in sight, but it is confidentially believed that there will be a steady and quite rapid gain in business in all lines of builders' supplies as soon as the first of the year arrives.

The September report of building operations in Pittsburgh showed 243 permits, amounting to \$2,260,939. This compared with 293 permits, totaling \$880,649, in September, 1914. The big gain last month was due to the taking out of a permit for the Union Arcade building, which is being erected by Henry C. Frick at an estimated cost of \$1,400,000.

The Wage Committee of the Pittsburgh Builders' Exchange has completed the list of wage scales with the dates of termination of the agreements in the various building trades in Pittsburgh.

MILWAUKEE MARKET CONTINUES HEALTHY.

Milwaukee, Wis., Oct. 19.—The Milwaukee building record during the month of September showed a gain of 145 per cent, and the indications are that a good gain will be made during October. Building Inspector W. D. Harper is confident that a new high record for the year will be made. Many large building projects are under way and there is an unusually large number of apartment houses, flats and residences going up this season. Building supply dealers say that business is showing decided gain.

The Retail Lumber & Supply Co., Shawano, Wis.; capital, \$10,000; incorporators, W. T. Patrick and R. D. Gorman.

Work Started on Boston Dry Dock.

Boston, Mass., Oct. 19.—With the actual starting of the big government dry dock here on Oct. 15, the biggest construction work of several years in this city is now under way. The operation has been waiting state approval ever since the contract was signed on June 21 last. The state's share in the contract made by the board of port directors with Holbrook, Cabot & Rollins Corporation is \$1,846,582.50 and the whole operation will come to more than \$3,500,000.

The last supplementary amendment was signed Wednesday, the approval of Secretary of the Navy Josephus Daniels was immediately forthcoming and the great work started within 24 hours thereafter. Governor Walsh held up the contract until all labor conditions were satisfactory. Governing changes or modifications the late amendments also require the contractor to furnish minute details to the engineer from time to time as to the expenditures and the amount of work done, thus placing all responsibility on the port board.

General building is going pretty lively into the fall months. On 244 projects started in the last two weeks the valuation reported by the F. W. Dodge Co., is \$2,639,000. It might be mentioned in this connection that the foundations are being built for a hotel for unemployed to be erected by Rufus F. Dawes, of Chicago, to cost \$100,000. The dimensions are 131 by 60 feet, to be of brick, stone, steel and reinforced concrete construction.

The market for building materials is correspondingly active. Dealers are optimistic and look forward to next year as one of excellent prospects if seaboard conditions see a continuance of the present state and further progress as anticipated when the government program at navy yards is given its expected approval by congress, together with greater extension of eight-hour grants in mills and factories now most active.

Pacific Coast Building.

San Francisco, Oct. 19.—With the exception of San Francisco and Oakland, the larger cities of the Pacific Coast show a falling off in permits issued for the month of September as compared with the same month for last year. Most of them also show more or less easing off as compared with the month of August of this year. In San Francisco the total value of the building permits issued for September just closed amounted to \$1,086,912, a gain of ten per cent as compared with the month preceding, and a gain of nearly twenty per cent as compared with September, 1914. In Los Angeles, the September building totals showed only \$828,758 as compared with slightly more than a million dollars for the month preceding, and with \$1,100,000 for September, 1914. The building permits for Oakland, Cal., reached a total of \$522,000, or slightly more than for August, and a gain of fifty per cent over September, 1914. The September permits for Seattle, Wash., amounted to \$471,000, a slight gain over August, but a drop of close to twenty per cent as compared with September, 1914. The Portland, Ore., record for September showed a building total of only \$303,000, a drop of more than one-half from the August showing, but practically the same as the total for September, 1914. The smaller cities of California nearly all showed a falling off in building for September.

Much Improvement in Building.

Building construction in the United States for September shows a remarkable increase over the corresponding month a year ago. Permits were taken out in 106 cities in September, according to official reports to Construction News, for the construction of 22,433 buildings, involving an estimated cost of \$65,980,889 as compared with 19,440 buildings at an aggregate cost of \$47,372,902 for the same month a year ago, an increase for the month just closed of 2,993 buildings and \$18,606,987 or 39 per cent. This is the most satisfactory report since the beginning of the war. The increases are so numerous and so generous that they almost defy analysis. There was an increase in 69 cities and a decrease in 36 cities, the latter being in such widely scattered parts of the country that it is scarcely worth while to go into a consideration of the details. The figures in detail are as follows:

Cities	No. of Buildings	Estimated Cost	No. of Buildings	Estimated Cost	% Gain	% Loss
Chicago	2,117	\$8,549,600	709	\$4,925,900	74	
Boston	460	5,432,000	341	2,604,000	108	
New York (Brooklyn and Bronx)	598	5,859,856	581	6,715,081		13
Philadelphia	1,453	4,731,670	1,207	1,808,155	162	
Brooklyn		3,495,913		3,322,290		1
Milwaukee	333	2,961,938	391	1,207,057	145	
Detroit	323	2,095,730	538	1,547,235	67	
Cleveland	1,117	2,356,680	1,073	2,132,970	10	
Washington, D. C.	147	1,150,449	339	740,894	139	
New Haven	185	1,473,499	74	431,410	242	
Cincinnati	1,203	1,364,444	1,300	665,098	90	
Indianapolis	841	1,355,792	466	411,723	203	
San Francisco	513	1,036,912	124	420,081	81	
St. Paul	231	1,035,339	137	2,811,936		63
Buffalo	340	937,000	316	701,000	7	
Minneapolis	342	945,730	481	881,275	7	
Los Angeles	675	829,716	778	2,108,064		25
St. Louis	747	800,125	733	651,480	29	
Kansas City, Mo.	299	778,425	338	365,083	37	
Birmingham	186	720,366	91	214,200	129	
Toledo	257	701,648	293	360,318	96	
Atlanta	283	677,746	245	177,204	281	
Newark, N. J.	267	669,458	154	231,660	186	
Baltimore	318	591,200	324	234,260	47	
Worcester	149	592,785	116	234,160	133	
Rochester, N. Y.	279	584,845	238	466,534	18	
Oakland, Cal.	368	521,500	324	234,260	47	
Louisville	206	506,110	193	262,420	92	
Columbus, Ohio	262	504,710	199	491,725	8	
Seattle	317	471,615	380	558,580		13
New Bedford, Mass.	31	465,531	10	466,225		
Akron	339	381,925	123	246,373	33	
Omaha	130	359,055	74	112,360	11	
Trenton	139	345,644	79	144,917	140	
Albany	270	320,985	291	267,225	27	
Canton	66	340,535	61	102,200	233	
New Orleans	111	315,870	108	255,016	22	
Springfield, Mass.	116	312,510	128	255,016	22	
Syracuse	177	302,315	169	262,323	15	
Portland, Ore.	464	299,880	445	309,140		3
Duluth	135	285,337	132	267,329	34	
Salt Lake City	123	284,309	107	481,850		41
Peoria	46	266,140	44	133,325	99	
Troy	51	261,405	69	131,104	268	
Wilmington	34	251,345	51	49,870	428	
Richmond, Va.	117	241,762	130	136,799	77	
Des Moines	94	218,470	51	360,650		43
Memphis	312	209,538	138	132,172	249	
Grand Rapids, Mich.	144	205,813	150	497,694		59
Pasadena	161	199,798	108	134,954	48	
Dayton	163	191,975	125	145,783	249	
Holyoke	17	185,822	9	67,025	177	
Superior	66	177,890	108	391,348		64
Allentown	36	175,075	27	81,086	113	
St. Paul	49	172,550	38	84,030	104	
San Antonio	230	164,535	168	186,126		12
Youngstown	103	164,480	82	459,025		64
Fort Wayne	63	161,245	52	128,860	51	
Birmingham, Ala.	735	157,434	356	163,213		3
Spokane	102	145,000	66	40,690	236	
Eric	95	129,761	122	238,240		41
Berkeley, Cal.	109	121,700	71	294,000		39
Norfolk	43	120,845	49	58,731	122	
San Diego	157	119,181	177	131,541		1
Cedar Rapids	49	119,000	43	294,000		61
Lincoln, Neb.	80	115,713	37	68,650	34	
Portland, Me.	48	115,650	38	25,020	391	
Pateron, N. J.	77	110,537	78	73,755	68	
Wilkes-Barre	70	110,537	78	73,755	68	
Binghamton	120	115,534	172	100,260	15	
Quincy, Mass.	79	112,048	98	119,501		10
Bayonne, N. J.	60	110,458	17	171,766		27
Huntington, W. Va.	67	105,088	54	73,045	43	
Evansville	176	102,275	146	89,146	14	
Haverhill, Mass.	88	101,850	32	48,509	184	
St. Joseph, Mo.	60	99,035	32	36,173	276	
Brockton, Mass.	51	96,805	84	91,514	6	
Pasadena, N. J.	15	95,165	39	57,514	67	
Elizabeth, N. J.	87	94,834	27	72,809	290	
Nashville	289	84,286	56	77,505	9	
Davenport	46	81,565	53	108,067		63
Utica	46	78,565	53	115,588		49
Springfield, Ill.	41	76,640	42	139,230		4
Pt. Worth	66	69,530	46	72,730		4
Sacramento	111	68,474	174	132,756		48
Woonsocket, R. I.	30	65,019	19	12,075	428	
Savannah, Ga.	49	64,360	48	77,383		16
Kansas City, Kan.	56	64,325	51	93,163		2
Albama	58	63,928	57	68,351		8
Reading	35	63,875	42	47,150	23	
Harrisburgh	39	63,175	34	105,450		41
East St. Louis, Ill.	48	62,040	41	74,515		44
Topeka	51	59,897	37	41,575		19
Lawrence, Mass.	99	59,745	15	58,890		9
Jacksonville, Fla.	37	54,960	55	48,992		33
Chattanooga	179	51,105	217	77,357		51
Stockton, Cal.	47	49,309	23	6,470	661	
New Britain, Conn.	49	46,055	29	19,137	140	
Tacoma	107	45,612	128	42,100		13
South Bend	29	36,407	36	36,900		12
Ashburn, N. Y.	24	34,835	13	37,145		3
San Jose	59	33,861	53	56,915		60
Saginaw	34	32,703	16	15,892		49
Hoboken, N. J.	15	2,080	10	28,045		78
Colorado Springs	24	7,865	31	28,045		78
Totals	32,433	\$65,980,889	19,440	\$47,372,902	39	
September, 1915	31,316	\$64,928,713				
September, 1914	30,304	\$61,703,245				
September, 1913	18,656	\$47,372,902				
September, 1912	15,440	\$35,980,889				

It is not surprising that Chicago should stand at the head of the country in the volume of building operations, together with an increase of 74 per cent, and that Boston should follow with an increase of 108 per cent and Philadelphia 162 per

cent, but it is surprising that New York City should show a loss of 15 per cent and Brooklyn one per cent. However, New York's record in so far as activity is concerned for this year has been established, a large number of permits having been taken out in the earlier part of the year of sufficient magnitude to make up any falling off at the present time in the totals for the year.

It seems like old times to read that Milwaukee has an increase of 145 per cent, Detroit 67, Cleveland 10, Washington 149, New Haven 242, Cincinnati 90, Indianapolis 205, San Francisco 31, Buffalo 30, Minneapolis 7, St. Louis 22, Kansas City 37, Bridgeport 129, Toledo 95, Atlanta 281, Newark 186, Baltimore 52, Worcester 133, Oakland, Cal., 47, Louisville 92, Columbus 3, Akron 33, Omaha 15, Trenton 140, Albany 27, Canton 233, New Orleans 98, Springfield, Mass., 22, Syracuse 15, Duluth 52, Peoria 99, Troy 268, Wilmington 428, Richmond 77, Memphis 58, Pasadena 43, Dayton 349, Holyoke 17, Allentown 112, Sioux City 104, Ft. Wayne 31, Spokane 256, Berkeley, Cal., 39, Norfolk 122, Lincoln 34, Portland, Me., 391, Paterson 66, Wilkes-Barre 40, Binghamton 15, Huntington, W. Va., 43, Evansville 14, Haverhill 144, St. Joseph, Mo., 278, Schenectady 6, Brockton 67, Passaic 360, Elizabeth 29, Nashville 9, Woonsocket 438, Kansas City, Kan., 3, Altoona 2, Reading 33, Topeka 44, Lawrence, Mass., 2, Stockton, Cal., 661, New Britain 140.

Another surprise is that St. Paul should have a decrease of 63 per cent, but then St. Paul has been building faster than any city in the Northwest. Los Angeles, decrease 25, Rochester 15, Seattle 15, Salt Lake City 41, Des Moines 43, Grand Rapids 52, Superior 54, San Antonio 12, Youngstown 64, Erie 41, Cedar Rapids 51, Davenport 25, Utica 63, Springfield, Ill., 49, Sacramento 48, Savannah 16, Harrisburgh 41, East St. Louis 16, Jacksonville, Fla., 12, Chattanooga 33, Tacoma 53, South Bend 13, Auburn 7, San Jose 12, Saginaw 60, Hoboken 42 and Colorado Springs 72.

The increase is in all sections not only where they are making munitions of war, but where the crops are good, where there are staple industries such as the manufacture of steel are again active, and in the big centers of population where a revival in building construction is a necessity to meet the growing demands. No better evidence of prosperity need be had than is contained in the foregoing.

Bradstreets Report Big Increase.

New York, Oct. 19.—The splendid gain in national building construction as reported by Bradstreets for August was followed by much heavier building reports for September. A total of 140 cities reported as against 132 in August, indicating a 30.3 per cent gain over September of last year. This percentage of gain, of course, compares with a decrease of 33 per cent in September, 1914, from September, 1913, but it should be noted that every group of cities, except the far West, shares in the expansion in values noted in September, and also in the increases shown in the number of permits, which, for the country as a whole, show a gain of 15.2 per cent over September a year ago. The gains of 15 per cent in number of permits and of 30.3 per cent in expenditure, it might be added, compare with gains of six per cent in permits and 14 per cent in values in August this year, when the building tide definitely turned for the better, and with decreases of eight and 14 per cent, respectively, in permits and values in July. The percentage of gain in values in September, by the way, is the largest reported in any month since December, 1912.

The large gains reported in August and September make the showing for the third quarter of the year a favorable one, a gain of 6.2 per cent being reported over the third quarter of 1914, and the decrease in building expenditure for the nine

months of the calendar year has been whittled down to five per cent, which seems likely to be further reduced, if not turned into a gain, before the calendar year 1915 closes.

The record of building expenditures at leading American cities reporting monthly, quarterly, and yearly, from January, 1913, down to and including September, 1915, shows the ebb and flow in the building industry in the past 33 months, as follows:

	1914	1913	Change per cent.
Jan., 146 cities.....	\$ 45,999,862	\$ 55,514,979	D 17.1
Feb., 148 cities.....	51,376,112	62,784,999	D 18.1
March, 150 cities.....	55,610,997	83,388,638	I 2.6
First quarter.....	\$181,986,971	\$201,688,616	D 9.7
April, 150 cities.....	\$ 83,364,426	\$ 97,405,890	D 14.4
May, 146 cities.....	82,761,751	86,809,963	D 4.6
June, 150 cities.....	85,532,913	82,999,953	I 3.0
Second quarter.....	\$251,659,090	\$267,215,847	D 5.8
Six months.....	\$433,846,061	\$468,904,463	D 7.5
July, 152 cities.....	\$ 82,857,507	\$ 78,786,703	I 5.1
August, 152 cities.....	62,976,175	65,703,443	D 4.0
Sept., 153 cities.....	53,576,994	79,730,232	D 33.0
Third quarter.....	\$199,190,676	\$224,220,378	D 11.1
Nine months.....	\$632,836,737	\$693,124,841	D 9.7
Oct., 152 cities.....	\$ 52,212,481	\$ 66,141,492	D 21.0
Nov., 151 cities.....	43,882,352	50,648,911	D 13.3
Dec., 150 cities.....	41,728,593	68,812,935	D 39.3
Fourth quarter.....	\$137,823,436	\$185,603,338	D 25.7
Twelve months.....	\$770,660,173	\$878,728,170	D 12.2
Jan., 155 cities.....	\$ 45,764,309	\$ 49,944,341	D 8.3
Feb., 155 cities.....	45,769,864	52,177,227	D 12.2
March, 155 cities.....	75,250,465	85,795,424	D 12.2
First quarter.....	\$166,784,638	\$187,916,992	D 12.2
April, 155 cities.....	\$ 79,469,221	\$ 84,565,850	D 6.0
May, 155 cities.....	85,513,438	85,212,713	I 0.3
June, 155 cities.....	67,542,904	86,458,820	D 21.8
Second quarter.....	\$232,525,563	\$256,237,383	D 9.2
Six months.....	\$399,310,201	\$444,154,375	D 10.0
July, 155 cities.....	\$ 71,569,657	\$ 83,640,692	D 14.4
August, 154 cities.....	70,487,290	61,273,830	I 13.9
Sept., 140 cities.....	67,374,433	51,684,946	I 30.3
Third quarter.....	\$209,431,386	\$197,109,468	I 6.2
Nine months.....	\$608,741,587	\$641,353,843	D 5.0

Mexican Business Improved.

Monterey, Mexico, Oct. 19.—Business and industrial conditions generally throughout that part of Mexico which is under control of the Carranza Government show a big improvement over what they have been for the last four or five years. It is believed here that the recognition of Carranza by the United States Government and the other members of the Pan-American conference will go far towards bringing about an era of tranquility in this country. That this feeling of optimism is well fixed is shown by the general resumption of many kinds of business in Northern and Central Mexico. The railway route between Laredo, Texas, and the City of Mexico and Tampico, touching the cities of Monterey, Saltillo, San Luis Potosi and other places is now open and a great quantity of goods and supplies are being shipped into the country from the United States to supply the emergency needs of merchants, manufacturers and others.

That the United States will be called upon to supply cement and other building materials for the rehabilitation of many of the industrial enterprises of this country is very apparent. There is also much to be done here in the matter of repairing public utility plants, streets and the re-building of store structures. If permanent peace has arrived Mexico will be a fine field for American contractors and builders for some time to come. It also offers an inviting opportunity for the sale of various kinds of building materials and supplies. Formerly Mexico was a large patron of Germany, England and France in the matter of purchasing building materials, but now that those sources of trade are closed, the United States will receive the orders that used to go to Europe.

The Edmundson-Mattson Co., Pittsburgh, Pa.; will do a general retail business in lumber and builders' supplies; incorporators, E. J. Edmundson, J. F. Mattson and Alfred M. Lee.

Small Orders Keep Louisville Busy.

Louisville, Ky., Oct. 19.—Most of the building supply concerns of Louisville are now very busy with an accumulation of small orders which require considerable time and attention. A number of big contracts are also being handled, but a number of the large contracts have not been split up and the sub-contracts awarded so far. Building is at present going forward on a freer scale than had been expected earlier in the season, and the outlook for late fall and winter business is generally considered good.

A gain of \$242,680 was recorded in the building operations of Louisville during the month of September, compared with the corresponding month of 1914. During last month 205 permits were issued for the erection of buildings at an estimated cost of \$506,110, as against 193 permits, representing an expenditure of \$263,430, in September a year ago. One or two big contracts aided considerably in bulging the totals for September of this year, but at the same time the number of permits was slightly larger.

From present indications Louisville, Ky., will shortly have to vote another bond issue with which to erect more and larger school buildings to accommodate the rapidly increasing number of students of the public schools. E. O. Holland, superintendent of schools, in a recent address before the Parent-Teacher Association of the Henry Clay School, said the bond issue of three years ago should have been for \$2,000,000 instead of \$1,000,000. Although more than half a dozen new schools have been erected he said some of the buildings were still crowded.

H. H. Frazer, sales manager of the R. B. Tyler Co., reports that while brick sales have been fairly good, the bulk of the company's business has been on lime, cement, plaster and other supplies during September and October. During the past few days Mr. Frazer has signed up contracts for 65,000 Western Rough Texture brick, of mingled shades, for the outside of the new Bethlehem Evangelical Church, Hill street. A similar quantity of gray brick, manufactured by the Columbus Brick & Terra Cotta Co., will be used for the interior walls of the church. The entire interior of this church will be of face brick. Facing the interior of churches with brick instead of plaster or other material is a new idea which is spreading rapidly in this district. Mr. Frazer also reports a number of small contracts which include 20,000 Eberhard Doubletex brick, manufactured by the Eberhard Brick Co., of Massillon, Ohio, for the residence of Frank H. Brown, in Cherokee Park, and 20,000 red smooth face brick for a new bungalow at Forty-fifth and Chestnut street, for B. F. Weitzel. Deliveries are being made on 40,000 Kittaning brick, manufactured by the Kittaning Brick & Fire Clay Co., of Kittaning, Pa., on the Welsh & Wiseman store building, at Danville, Ky., and of 140,000 Eberhard, rough texture brown brick, on the new Belknap school building.

Warren Brothers report that they are now obtaining more small orders than ever before in the history of their business. They are almost entirely for building supplies, as contractors' equipment is moving slowly. The principal items moving at this time are waterproofing materials, wall board and tile.

L. M. Rice, president of the Central Paint & Roofing Co., reports an excellent run on prepared roofings of various kinds, and the sale of paints has also been better than usual. This year will prove a banner one unless sales slump badly during November and December. Waterproofing materials are moving well.

The contract for furnishing the city of Louisville with cement and lime during the coming year has been awarded to the Louisville Builders' Supply Co. This contract calls for about 20,000 barrels of cement and about 500 barrels of lime. The

latter is used largely for sanitation, while the cement is used for street repairing. The same company had the contract last season. A. E. Livingston, the local manager, also reports that he was awarded a contract for furnishing Denison interlocking tile for use in connection with the new annex to the Tyler Hotel. This contract will call for about five or six cars of tile.

R. E. Haldeman, manager of the Louisville office of the Chamberlin Metal Weatherstrip Co., reports that the concern has had a fair summer business, and is looking forward to an active fall trade.

Building Active Throughout Texas.

Austin, Texas, Oct. 19.—Building activities and all lines of business have been given a great impetus by the high prices which are being paid for cotton and cotton-seed. Much of the season's crop is being marketed at prices ranging around 12 cents per pound, while as high as \$47 per ton is being paid for cotton-seed. Last year the bulk of the cotton crop was marketed at about seven cents per pound and only \$15 to \$18 per ton was received for the seed. When the fact is considered that each 500-bale of cotton yields approximately 900 pounds of seed some idea can be had of the added revenue that is now being received on account of the prevailing high price of the seed. All kinds of crops in Texas gave good yields this year, with the exception of cotton, and the latter's total Texas production will be about 3,500,000 bales as compared with 4,200,000 bales last year.

The building permit records of the different larger cities of the state show a large increase in the number of new buildings and their aggregate cost for the last month over that of a similar period of a year ago. It is very noticeable that concrete structures are coming more and more into favor.

There is more road improvement work in progress and in prospect in Texas at this time than ever known before. Bond issues for the construction of highways are being freely voted by the taxpayers. An unusual amount of attention is also being given to street paving and sidewalk construction. Even the smaller towns of 5,000 population and upwards have caught this spirit of improvement and much is being done towards adding to the civic attractiveness of the different municipalities.

Toronto Building on Increase.

Toronto, Oct. 19.—September showed a marked increase in the number of permits issued in Toronto and it looks as if this increase would be maintained. In October there will be the permit for the Toronto Union station building, the estimated cost of which is \$3,340,000, exclusive of the other improvements which will cost \$8,000,000 more; a 10-story office building for the Imperial Oil Co., which is a subsidiary company of the Standard Oil corporation at a reported cost of \$125,000; an addition to the Dominion Carriage Co.'s plant which was bought by the Chevrolet Co. and a factory for Kellogg's, an American cereal concern, which is making a deal for 20 acres in this city.

The following figures show the increased number of permits taken out in September of this year as compared with the same month last year and the number of completed buildings:

September, 1915—527 erections and 405 permits	
September, 1914—415 erections and 368 permits	
Gain.....	112
	37

The value of buildings erected was smaller in September of this year but this is accounted for by the completion of several large structures, eight in number, which accounted for \$726,000 in September of last year. Eliminating these and taking the normal building operations such as reflect the general growth of the city, the comparison shows September, 1915, to advantage, the figures for September, 1914, being \$446,000 and \$518,000 for the same month this year.

Conditions in Western Canada.

Winnipeg, Man., Oct. 19.—The building and engineering trades in Western Canada are brightening up slightly, owing to the fact that many of the farmers are spending money in making improvements and in paying their old debts now that the \$330,000,000 crop has been harvested. Particularly in the country is there an increase in building operations to be noted; in the cities everything is very quiet, more so in the builders' supply business. It is, however, anticipated that there will be a little fall business, but nothing of any importance will now transpire until next spring. In the meantime everybody is flying close to the wind, economizing wherever possible in the hope that as soon as building operations start next year, business will pick up and make up for the present depression.

An item which should cheer many readers is the fact that at Edmonton, Alberta, the Acme Brick Co., Ltd., whose works have been shut down since August, 1914, have resumed operations again. At the time of the shutdown the company had about 4,000,000 brick on hand; this stock has all been disposed of since and orders are still coming in.

There appears to be quite a lot of construction work going on in the Far West, particularly on the Pacific Coast. At Ogden Point, B. C., the fifth crib was sunk at the site of the new outer harbor piers now being constructed by Grant, Smith & McDonnell. The sinking of this huge concrete pier makes interesting reading in another column in this issue of ROCK PRODUCTS AND BUILDING MATERIALS.

Steady progress was maintained in the construction work on the Victoria, B. C., breakwater during last month. The weather conditions have been all that could be desired and consequently the contractors, Sir John Jackson, Ltd., have not had to suspend operations owing to high seas. However, some trouble is being experienced by the strong currents caused by the action of the tides at the head of the completed section of the concrete breakwater. The great concrete sea wall is at the present time about three-quarters completed.

The large grain elevator being erected on the government dock site at Vancouver, B. C., at a cost of over \$1,000,000 by Barnett, McQueen & Co. is nearing completion, and the contractors hope to have the facilities ready for service by Jan. 1, 1916. Although construction work was only started a few months ago, splendid progress has been made. The concrete foundations and basement of the concrete storage bins, working house and the receiving tracks have been finished, and work is now proceeding on the upper stories of the structures. Half of the structural work on the transformer house also has been done. In view of the fact that the foundations and lower portions of the grain warehouse and working house are below the water line, the whole structure has had to be waterproof to preclude any danger of moisture getting in and affecting the grain.

The huge dock is also rapidly approaching completion. The space enclosed by the great concrete wall that forms the outer edge of the massive concrete structure has been practically filled in, some 30,000 cubic yards of material having been deposited. Worktrains have been engaged in reclaiming the shore portion of the dock, on which will be installed the tracks for the elevator.

One of the world's largest telescopes will soon repose in a large building being erected for the Dominion government on the summit of Little Saanich mountain in British Columbia. The foundations have already been laid, and the contractors are now engaged in the erection of the frame of the building. A large water reservoir has been erected in the vicinity. This was necessary for the mixing of the cement which is to be used. This reservoir will furnish the observatory with a constant supply of fresh water when the building is completed.

SAND and GRAVEL

Efficient Production of Sand and Gravel.

J. W. Thompson, who operates a sand and gravel washing plant at Anchorage, La., writes to ROCK PRODUCTS AND BUILDING MATERIALS that, contrary to a news report of Oct. 7, his Profit Island plant was but slightly inconvenienced as a result of the recent hurricane storm which swept over the lower part of Louisiana and the mouth of the Mississippi River. Mr. Thompson says:

"I am very glad to advise that other than the breaking of the pontoon line on one of our suction dredges and the drifting of the pontoons to the other side of the river, where they were picked up the following day, we sustained little damage. Our loss in New Orleans at our several storage piles and on our construction work was also nominal."

Mr. Thompson is the sole lessee of Profit Island, about 20 miles from New Orleans, at which point he produces sand and gravel by four Morris suction dredges. He likewise operates a most efficient sand and gravel washing and handling plant at Anchorage, which has been in operation a little more than six months. The Profit Island plant is located on the Mississippi River about 13 miles above Anchorage, to which point the material is brought in barges and unloaded by means of a floating stiff-leg derrick operating a three-yard clam-shell bucket.

The bucket dumps into a large hopper, also mounted on the derrick barge, from which the material is loaded into an 11-yard car, and is then drawn up an incline track laid upon the sloping levee.

This stiff-leg derrick has a 62-foot boom and a 16-foot bullwheel. The bucket is operated at a 47-foot working radius. This bucket was furnished by the Andresen-Evans Co., and it weighs approximately 7,500 pounds. All the wire rope furnished on the derrick and bucket is Leschen's patent flattened strand "Hercules;" about 1,300 feet being required in three-quarter, seven-eighths and one-inch diameters.

At the top of this incline track the car dumps into a second hopper, which loads the sand and gravel on to a 30-inch inclined belt conveyor leading to the bin beyond. As the long dimension of the bin is at right angles to this conveyor, it is necessary to transfer the material to a second belt running horizontally along the long axis of the bin. This conveyor is equipped with an automatically propelled tripper, which travels back and forth and loads the material uniformly into the bin.

When desired the sand and gravel can be transferred, by means of the tripper and chute, from this second conveyor to a third one, on which it is elevated to a washing table. Here the material is thoroughly mixed with water, and is then carried by means of sluices over various sized screens, which separate it into the different common commercial sizes, the excess sand and dirt being carried back with the washing water into the river.

From the bin the material is loaded directly into cars through gates in the floor, the bin being wide enough throughout its full length to accommodate two tracks.

The storage and loading bin is 28 by 130 feet in plan, with walls 15 feet high, giving a total storage capacity of about 2,000 yards. About five-eighths of the total length of the bin is devoted to the storage and handling of the mixed sand and gravel just as it is obtained from the river, this portion of the bin being loaded from the second conveyor mentioned previously. The remaining three-eighths of the bin is divided into a number of compartments, and is devoted to the various sizes of washed and screened material.

The whole plant is designed for a normal working capacity of 2,000 yards, or approximately sixty cars per day. This plant was designed by Brenneke & Fay of St. Louis.

WABASH VALLEY TRADE BRISK.

Terre Haute, Ind., Oct. 19.—The sand and gravel industry of the Wabash valley has enjoyed a brisk trade since the middle of September. This was due largely to bad weather conditions in the middle of the summer and the slow harvesting of crops, which was not finished until about this time.

Just now the gravel road construction is at its height and operators in this valley are crowded to keep up with their orders. This condition will not exist longer than the tenth of November, and shortly after that business will be practically at a standstill until spring.

L. R. Witty, general manager of the Wabash Sand & Gravel Co., predicts a better demand for 1916 than has existed this year and a tendency to upward prices, owing to strict specifications.

The Greenville Gravel Co., of Greenville, O., has made arrangements to move to Cincinnati, O., recently obtaining a permit to construct a gravel washing and screening plant on Liston avenue, at a cost of \$6,000. The move was decided upon in order to take advantage of the larger market in Cincinnati and its vicinity.

Stamp Sand for Reynolds Shingles.

The H. M. Reynolds Asphalt Shingle Co., Grand Rapids, Mich., who manufacture asphalt shingles, is one of the concerns producing this popular commodity that is constantly in the search for new materials which will add to the durability and attractiveness of the shingle. As a result of this policy, diligent search has been made in all parts of the country for a sand that would prove ideal as a coating for the shingle.

This search brought H. M. Reynolds, the head of the concern, up into the most Northern part of Michigan, where he learned that beds of Delaware sand were located. He found exactly what he was looking for and immediately had a car of the sand shipped to his factory and upon the conclusion of his experiments placed an order for 25 carloads.

Mr. Reynolds states that the shingle trade is not as brisk as it might be but that in a normal business year he expects to use 3,000 carloads of the sand.

In the manufacture of the Delaware stamp sand shingle a three-ply layer of felt is used, thoroughly saturated with asphalt and then covered with hot asphalt, into which the stamp sand, finely screened, is forced solidly. The surface of the shingle shows none of the asphalt, nothing but the stamp sand. The effect is very pleasing and the wearing qualities are said to be excellent.

With one large manufacturing concern using the Delaware sands, it is possible that other concerns will look into the merits of the product and that eventually an enormous trade might be worked up.

TO TEST SAND TAX LAW.

Little Rock, Ark., Oct. 19.—A case to test the constitutionality of the law passed by the Arkansas legislature recently putting a tax on sand and gravel taken from the streams and lakes in the state by corporations has been filed in the Supreme Court, the suit being brought by the state against the Greenville Sand & Gravel Co., a Kentucky corporation, to recover \$50,000 tax on 1,000,000 yards of sand and gravel taken from the Mississippi river in Chicot county since 1913, when the sand tax law was passed. The Chicot Chancery Court overruled a demurrer filed by the company setting forth that the material taken was not in the territory of the state and that the act imposing the tax is unconstitutional. The company appealed to the higher court.



SAND AND GRAVEL HANDLING PLANT OF J. W. THOMPSON AT ANCHORAGE, LA.

Condensed Sand and Gravel News.

The Rodgers Sand Co., Pittsburgh, Pa., has just secured the contract to supply the sand for the construction work going on at Thirty-third street in the elevation of tracks of the B. & O. R. R. The company's new plant at Squaw Run, up the Allegheny River, is now operating at full capacity and is helping to supply the materials for the big orders which are coming into the company's office. J. H. Rodgers, manager of the company, is very optimistic about business conditions in his line, and he looks for a tremendous increase next spring. The teaming business, which is a side line to building activities of the company, is also showing a big increase lately.

The Iron City Sand Company, Pittsburgh, Pa., has been doing a fair to good business all fall on the rivers. Most of its boats and barges have been working. Like other concerns, it complains greatly of the sharp competition, which is cutting down profits in every direction in the sand business.

The Mt. Cydonia Sand Co. has completed a stretch of two miles of grading for its siding for the Waynesboro branch railroad to its plant back of Fayetteville, Pa. The company will begin shipping sand early in November.

Machinery is being shipped by the Lewistown Foundry & Machinery Co. to Berkeley, W. Va., where a large glass sand plant is being built. This includes numerous heavy parts and wheels.

NEW INCORPORATIONS AND VENTURES.

Santa Fe Gravel Co., Fresno, Calif.; capital, \$9,000; directors, Louis Manuel, H. D. Carver, W. J. Whitney.

Arkansas Construction Co., 632 Southern Trust building, Little Rock, Ark.; capital stock, \$15,000; will install river-washed gravel machinery; president, L. T. Osborn, Mt. Vernon, Ind.; secretary, R. S. Wilson; treasurer and manager, L. W. Raben.

Saratoga Sand & Gravel Co., Albany, N. Y.; increased capital stock from \$10,000 to \$15,000.

The Greenville Gravel Co., Fort Jefferson, Ohio; increased capital stock from \$240,000 to \$250,000.

North Shore Gravel Co., Inc., Brookhaven, N. Y.; capital, \$100,000; to quarry and deal in sand, gravel, etc.; incorporators, J. Beasley, J. C. Deloca and C. W. Kay, New York City.

The Cleveland Sand & Gravel Co., Cleveland, Ohio; capital, \$10,000; incorporators, Eli I. Goldberger, Charles Rothman, Fred B. Fishman, P. L. Idleman and Arthur H. Lichtig.

The Darlington Gravel Co., Ltd., Bowmanville, Ont., Can.; capital, \$40,000; manufacture concrete blocks, stone and brick and deal in sand and gravel; incorporators, John B. Eitchel, Bowmanville; George A. Stephens, Darlington, and others.

The Ideal Washed Gravel Co., Dayton, Ohio; capital, \$30,000; incorporators, Howard B. Irvins, Frank Brandon, J. M. Mulford, Waldron C. Gilmour and O. S. Higgins.

The Illinois Gravel & Sand Co., Joliet, Ill., according to Frederick D. Tucker, secretary and treasurer, plans to begin active work as soon as the weather permits next year on the gravel beds near Millsdale, Ill., which it has leased. The company opened the beds some time ago, installed machinery, piped the necessary water to operate and established switch track connections.

The Chagrin River Sand & Gravel Co., Aurora Station, Portage county, Ohio; capital, \$100,000; operate plant for production and handling of sand and gravel; incorporators, James H. Griswold, John A. Hadden, Willie E. White, R. Bailey and William H. Luther.

The Canal Silica Sand Co., Chicago, Ill.; capital, \$5,000; incorporators, Alfred W. Boys, Belle Brown, Morton H. Eddy.

Niagara Sand Corporation; care of N. W. Nister, 814 Richmond avenue, Buffalo, N. Y., recently in-

corporated, has increased its capital from \$75,000 to \$80,000.

The Rock Point Sand Co., Pittsburgh, Pa.; O. P. Pihl and W. B. Miller, Wabash building, and Henry Hirsch, also of Pittsburgh; to mine and sell sand at Rock Point, Pa.; capital, \$20,000.

The J. R. Hine Sand Co., Atlanta, Ga., contemplates erecting a loading plant at Junction City, Ga.

Utica White Sand Co., Utica, Ill.; capital, \$10,000; incorporators, N. J. Cary, J. F. Blakeslee, L. Blakeslee.

The Bowmanville Gravel Co., Ltd., Bowmanville, Ont.; J. T. Marsh, A. C. MacNaughton, C. W. Livingston and A. L. Shaver; deal in gravel, sand, crushed stone and other builders' supplies; capital stock \$40,000.

LOUISVILLE SAND MARKET STEADY.

Louisville, Ky., Oct. 19.—The sand market has remained steady and business has been fairly active all summer and fall. Large contracts have been rather slow in being placed during the past few weeks, and most of the old ones have been cleaned up. There are a number of good contracts in sight, however, and the trade is feeling optimistic concerning future developments.

Robert Nugent, of the Nugent Sand Co., reports that the company will continue digging sand this year until ice in the river shuts off operations. The concern dug sand through the entire winter of 1914-15 and by means of using steam in its hoppers was enabled to deliver sand direct from fresh barges throughout the entire season. Large stocks have been accumulated during the two seasons as a consequence, and if the river was closed for several months this winter the company would have plenty of stock on hand to fill all possible orders. The company's new tug boat is still on the ways at Jeffersonville, Ind., but will be launched some time this month.

A number of street jobs are now being started, and the demand for sand and gravel has been somewhat better than it was. Several big building jobs are to be let shortly.

PITTSBURGH SAND MARKET ACTIVE.

Pittsburgh, Pa., Oct. 19.—Sand companies in this city have had splendid conditions so far as weather is concerned for carrying on their business the past month. The water in the rivers has been at a good head and for this reason river shipments have been large and regular. There is no doubt but that business is looking better in general, but most of the sand companies complain that actual orders, especially for carload business, are not forthcoming in any large numbers just now. There has been a large amount of work in getting materials together for street operations and for the few big buildings in this city. Outside the state sales are increasing in some of the industrial towns where house building and other operations have been started on quite an extensive scale recently. Government work on the rivers is also going to call for quite an amount of sand this fall.

BURLINGTON, WIS., PLANT IN OPERATION.

The Burlington Sand & Gravel Co. has completed the work of installing equipment at its new pit near Burlington, Wis., said to be the largest gravel pit in southern Wisconsin and the entire plant is now in operation. The plant is operated by a big 250-horsepower Corliss engine and the company is able to turn out from 40 to 50 carloads of gravel daily.

The Penobscot Concrete Works at Pennsboro, W. Va., are working full time on a special order of 20,000 concrete blocks, which is for hurry-up delivery. This concern is one of the most prosperous and aggressive in its territory.

Loose Belts Are Good.

The sketch herewith indicates very clearly why it is advantageous to run belts as slack as possible. If this belt had been pulled up tight the upper part would occupy the position indicated by the dotted line, and then the arcs of contact would be only 180 degrees.

High belt tension is not so important as is contact. The more belt you have in contact, the better. By increasing the arc of contact as much as shown here it is possible to nearly double the pulling power of the belt. This can be shown mathematically and it is proved practically in many installations where belts are run as slack as possible.



The principal point to observe in getting the belt in shape to pull properly while running slack is to make it as soft and pliable as possible. It will then grip the pulleys closely; there will be no air gaps between the belt and pulleys; and in every way pulling conditions will be ideal.

For belt treatment, some people use castor oil, some use neatsfoot oil, and others use regular manufactured belt dressings. I personally prefer the manufactured article for the very plausible reason that a thing manufactured for a specific purpose should be better than a thing that is not manufactured alone for that purpose. Cigar boxes, for instance, are certainly better for cigars than "any old kind of baskets" although the baskets might easily "hold" the cigars. The regular cigar boxes are best because they are made expressly for cigars. There are many different kinds of cigar boxes, all made for their particular brand of cigars, and we might therefore naturally expect several different kinds of belt dressings, each made for its particular kind of belt.

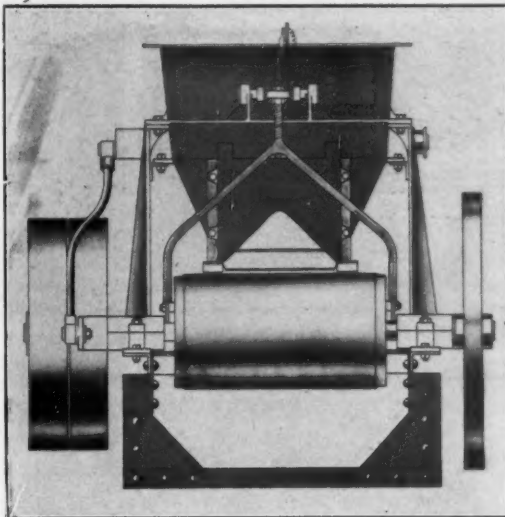
Some belt men think that when a belt runs slack, as shown in the diagram, it is not pulling full load. Well, a whole lot depends upon the distance between the shaft centers. Where the distance is as small as 30 feet I have known belts to run extremely slack, without a bit of slip, and the load was so great on the belt that it broke. The belt was therefore pulling as much as it possibly could pull before it broke. Had it been a "tight" belt it would have broken before that load was reached.

No belt should be strained to the breaking point, though. It is much better to use an amply wide belt so that continued use with big loads will not weaken it. Thus, with a good wide belt, and with a large arc of contact as shown, belt troubles may be reduced to the minimum. To be sure, the belt will need proper attention right along in line with the old adage—"A stitch in time saves nine."

TRAP CARS AND STATE TRAFFIC.

The Illinois public utilities commission has issued an order requiring the railroads to cancel their tariffs carrying increased rates for trap car service applying on Illinois state traffic.

It will be remembered that in the fall of 1914 the railroads proposed to impose a charge of four cents per hundred pounds on trap car freight, but on complaint of shippers the proposed charges were suspended by the state commission as well as by the Interstate Commerce Commission, pending hearing and investigation. Exhaustive investigations were entered into and masses of evidence gathered by both the federal and state bodies, resulting in a decision favorable to the contentions of the shippers.



To weigh and regulate the flow of material traveling in a continuous stream over a conveyor.

The Schaffer Poidometers

ARE ESPECIALLY ADAPTED FOR

Uniting different materials in correct proportions.
Delivering a predetermined quantity of materials to pulverizing or grinding machinery.
Feeding crushed coal to boilers.
Loading materials into cars or vessels and giving a record of the quantity loaded.

The Schaffer Eng. and Equip. Co.
TIFFIN, OHIO



SALES OFFICE:
Liggett Bldg., St. Louis



SALES OFFICE:
1010 Republic Bldg., Kansas City

MANUFACTURED BY

Union Sand & Material Co.

ST. LOUIS
Liggett Bldg.

KANSAS CITY
1010 Republic Bldg.

MEMPHIS
Tenn. Trust Bldg.

THE Standard Brands

OF

Portland Cement

Lightest in Color
Highest Tensile Strength

ALWAYS UNIFORM

Always the same high quality. Prompt shipment guaranteed at all times and made possible, as each mill is located within switching limits of the two greatest railroad centers of the West. You are assured of your orders being promptly filled.



Reg. U. S. Pat. Off.

Standard of Quality

WHEN other Wire Ropes are represented to be as good as "Hercules" is it not an admission that "Hercules" Wire Rope is the acknowledged standard of quality?

"HERCULES"
WIRE ROPE

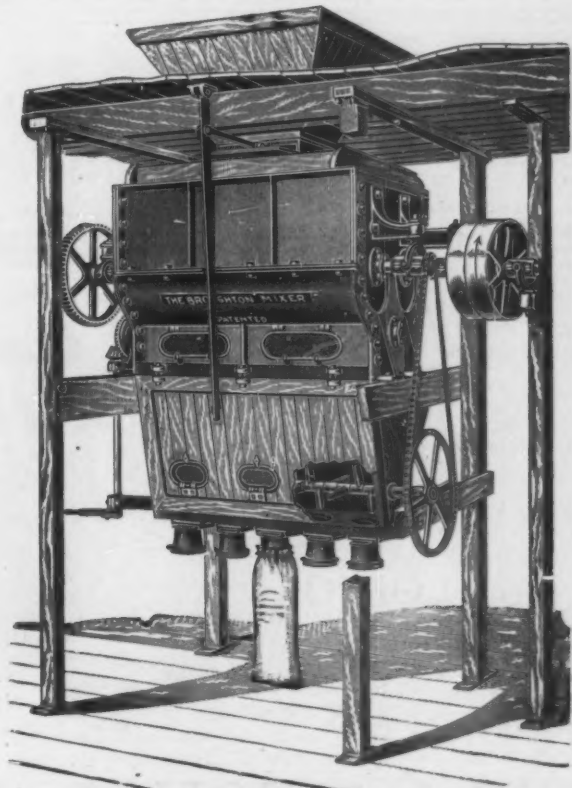
is not made to equal some other rope; it is made to give maximum service—to excel, not merely to equal.

In order that "Hercules" Wire Rope may be easily identified, it is always made with one red strand. It is the original colored strand Wire Rope.

ESTABLISHED 1857

A. LESCHEN & SONS ROPE COMPANY
ST. LOUIS, U. S. A.

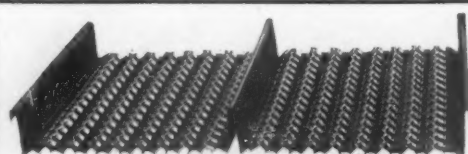
New York Chicago Denver Salt Lake City San Francisco



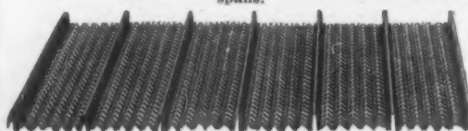
The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N. Y.

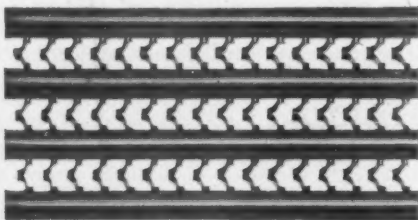
Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



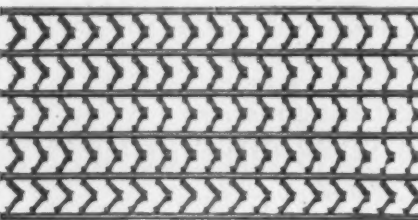
1 1/2" Hy-Rib—Very rigid. For heavy loads and wide spans.



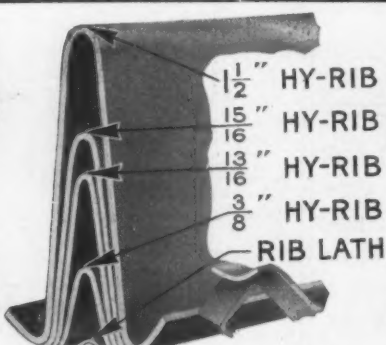
15/16" Hy-Rib for floors and roofs without forms. Sidings, partitions and ceilings without channels.



Beaded Plate Rib Lath—Permits two-coat work instead of three.



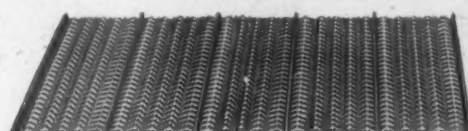
Standard Rib Lath in 3 gauges. Also "B" Rib Lath, similar in design.



It's the Strength of the Ribs that Counts.



13/16" Hy-Rib—Widely used in partitions, sidings and ceilings.



3/4" Hy-Rib Lath used as a self-furring lath and in partitions, ceilings, etc., for stud spacings 24 to 36 inches.

Hy-Rib, Rib Lath, Steel Studs, Etc.

Hy-Rib is a deep-ribbed steel reinforcement and is manufactured in four depths from 1 1/2" to 3/4", and each of these in various gauges. **Hy-Rib** eliminates forms in concrete floors and roofs and eliminates channels in partitions, sidings and ceilings. 3/4" Hy-Rib Lath is widely used in connection with Kahn Pressed Steel Studs, permitting spacings of from 24 to 36 inches, in walls, partitions and ceilings.

Rib Lath is the stiffest steel lath and in the heavier grades permits two-coat plaster work instead of three—saving in time, labor and materials—also allows wide stud spacing. **Rib-Lath** is manufactured in three types and various gauges.

Detroit Diamond Lath—A diamond mesh lath furnished in various gauges and plain, painted or galvanized.

Kahn Pressed Steel Studs Channels without prongs are furnished in sizes from 3/4" to 2". Steel Studs with prongs for attaching metal lath are furnished in sizes from 2" to 6" are capable of supporting loads. Hollow Steel Studs made of two 3/4" channels united by spacers are furnished in 2", 3" and 4" sizes.

Kahn Pressed Steel Sill Plates, Angles, Furring Strips, Beams, etc., are made in many shapes and sizes to meet all building requirements.

Steel Corner Beads and Metal Base Screeds are furnished in various types and sizes for use in plaster work.

Our products fill your needs and save you money. Secure our estimates—Catalogue FREE.

TRUSSED CONCRETE STEEL CO., Dept. H-26, Youngstown, O.

Representatives in Principal Cities

Kahn Pressed Steel Channel Studs, 2", 3", 4", 5" and 6".



Our Motto for Years Has Been---

Quality and Service

Send Your Orders on That Basis

PRICE ALWAYS RIGHT

Eastern Plant
PORT CLINTON
OHIO

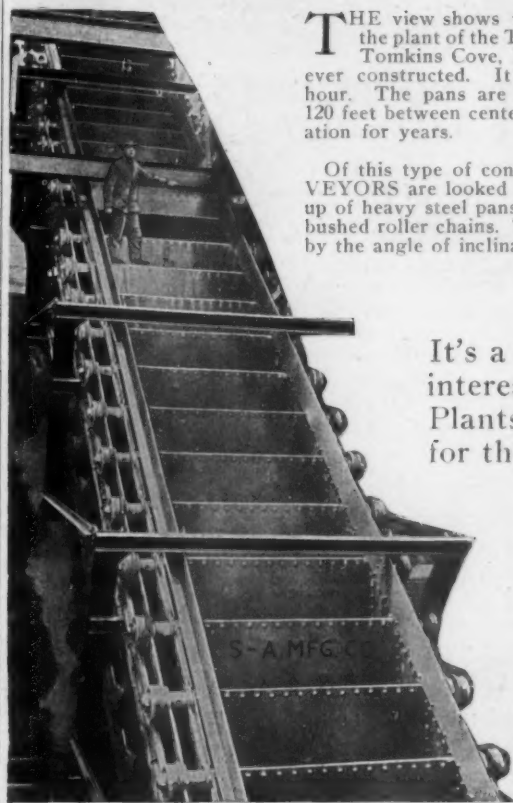


Western Plant
WEBSTER CITY
IOWA

THE NATIONAL RETARDER COMPANY
930 North Halsted Street, CHICAGO, ILL.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

1,000 Tons Per Hour Steadily—Up a 45-Degree Incline



THE view shows the "S-A" Steel Pan Conveyor in the plant of the Tomkins Cove Stone Crushing Plant, Tomkins Cove, N. Y. This conveyor is the largest ever constructed. It has a capacity of 1000 tons per hour. The pans are 72 inches wide and the conveyor 120 feet between centers. It has been in successful operation for years.

Of this type of conveyor, "S-A" STEEL PAN CONVEYORS are looked upon as standard. They are made up of heavy steel pans or buckets carried on heavy steel bushed roller chains. The shape of the pan is determined by the angle of inclination of the conveyor in order that

the maximum economy of steel may be secured. The chain is formed of heavy steel bars, arranged in pairs on either side of the pans with the chains suspended upon heavy steel cross bars. The maximum loads are predetermined and all stresses figured very accurately with an ample margin for safety. Under these circumstances and with perfect lubrication provided for all wearing parts there is no possibility of failure or breakage.

These conveyors may work horizontally or may be inclined at any angle. The slow, steady travel of the pans carries the material noiselessly and delivers it with practically no breakage. No attention is required for operation.

"The Labor Saver" Keeps You in Touch

It's a periodical we publish which describes and illustrates the more interesting of the "S-A" Conveying Systems, "S-A" Gravel Washing Plants, Screening Installations, etc. It gives live cost-cutting news for the busy engineer.

We send it free to any interested engineer. We'll put your name on the mailing list if you'll simply write us on your letterhead.

Stephens-Adamson Mfg. Company

Conveying, Screening, Transmission Machinery

NEW YORK
CHICAGO
SALT LAKE CITY

Aurora, Illinois
HUNTINGTON, W. VA.
PITTSBURGH
LOS ANGELES
BOSTON

ST. LOUIS
DETROIT
TORONTO

We design and manufacture conveying machinery for rock crushing plants, gravel washing plants, storage systems, etc. Also transmission and screening equipment, elevators, gates, feeders, car pullers.

BOOKS FOR THE TRADE

Cement Users

- Portland Cement for Users
Henry Faija and D. B. Butler. Price \$1.20. C
- Cements, Mortars and Concrete
Myron C. Falk. Price \$2.50. C
- Reinforced Concrete
W. H. Gibson and W. L. Webb. Price \$1.00. C
- Hand Book of Cost, Data
Halbert P. Gillette. Price \$5.00. C
- Concrete Construction
H. P. Gillette and C. S. Hill. Price \$5.00. C
- Cement Workers' and Plasterers' Ready Reference
H. G. Richey. Price \$1.50. C
- Reinforced Concrete
A. W. Buel and C. S. Hill. Price \$5.00. C
- Concrete
Edward Godfrey. Price \$2.50. C
- Reinforced Concrete
C. F. Marsh and Wm. Dunn. Price \$7.00. C
- Practical Treatise on Foundations
W. Patton. Price \$5.00. C
- Concrete
Thomas Potter. Price \$3.00. C
- Cement and Concrete
Louis C. Sabin. Price \$5.00. C
- Concrete and Reinforced Concrete Construction
Homer A. Reid. Price \$5.00. C
- Handbook on Reinforced Concrete
F. D. Warren. Price \$2.50. C
- Popular Handbook for Cement and Concrete Users
Myron H. Lewis & A. H. Chandler. Price \$2.50. C
- A Manual of Cement Testing
Richards & North. Price \$1.50. V
- A Treatise on Cement Specifications
Jerome Cochran. Price \$1.00. V
- Manual of Reinforced Concrete and Concrete Block Construction
Chas. F. Marsh and Wm. Dunn. Price \$2.50. V

Cement and Lime Manufacturers

- Bungalows, Camps and Mountain Houses
Price \$2.00. C
- Limes, Cements and Mortars, Concretes, Mastics, etc.
G. R. Burnell. Price \$0.60. C
- Instructions to Inspectors on Reinforced Concrete Construction
Geo. P. Carver. Price \$0.50. C
- Cements, Limes and Plasters
Edwin C. Eckel. Price \$6.00. C
- Practical Treatise on Limes, Hydraulic Cements and Mortars
Gen. Q. A. Gilmore. Price \$4.00. C
- Mortars, Plasters, Stuccos, Concretes, Portland Cements and Compositions
F. Hodgson. Price \$1.50. C
- Concrete Factories
Robert W. Lesley. Price \$1.00. C
- Portland Cement; Composition
Richard K. Meade. Price \$4.50. C
- Manufacture of Concrete Blocks
Wm. M. Torrence and others. Price \$1.50. C
- Practical Cement Testing
W. Purves Taylor. Price \$3.00. C
- Foundation and Concrete Works
E. Dobson. Price \$0.60. C
- Reinforced Concrete. Mechanic and Elementary Design
John P. Brooks. Price \$2.00. C
- Concrete and Stucco Houses
O. C. Hering. Price \$2.00. C
- Concrete Costs
Taylor-Thompson. Price \$5.00. C

Architects and Engineers

- Building Construction and Superintendence—Masonry Work
F. E. Kidder. Price \$6.00. C
- Theory of Steel-Concrete Arches and Vaulted Structures
Wm. Cain. Price \$0.50. C
- Concrete Country Residences. Price \$1.00. C
- Graphical Handbook for Reinforced Concrete Design
John Hawkesworth, C. E. Price \$2.50. C
- Theory and Design of Reinforced Concrete Arches
Arvid Reuterdaahl. Price \$2.00. C
- Treatise on Concrete, Plain and Reinforced
F. W. Taylor and B. E. Thompson. Price \$5.00. C
- Concrete Steel
W. N. Twelvetrees. Price \$1.00. C
- General Specifications for Concrete Work as Applied to Building Construction
Wilbur J. Watson. Price \$0.50. C
- Rocks, Minerals and Stocks
F. H. Smith. Price \$1.50. C
- Strength of Materials
Edward R. Maurer. Price \$1.00. C
- Highway Construction
Austin J. Byrne and Alfred E. Phillips. Price \$1.00. C
- Refrigeration
Chas. Dickerman and Francis H. Boyer. Price \$1.00. C
- Plumbing
Wm. Beall, Gray and Chas. B. Ball. Price \$1.50. C
- Estimating
Edward Nichols. Price \$1.00. C
- Building Superintendence
Edward Nichols. Price \$1.50. C
- Hollow Tile House
Squires. Price \$2.50. C
- Rock Excavating and Blasting
J. J. Cosgrove. Price \$2.50. J J C
- Reinforced Concrete
A. A. H. Scott. V

ROCK PRODUCTS AND BUILDING MATERIALS 537 S. DEARBORN STREET CHICAGO

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



This photograph shows a 30 inch

Rexall DOUBLE STITCHED Belt

in service in one of the largest and most up-to-date Sand and Gravel plants in the country. Has been operating steadily for four seasons and is still in excellent condition. This plant is equipped throughout with REXALL.

The Reason—REXALL is absolutely the highest type and most scientifically made belt on the market.

LET US CONVINCE YOU

Imperial Belting Company
Lincoln and Kinzie Streets Chicago

"It Comes from Milwaukee"



CHABELCO STEEL CHAIN BELT

for driving your conveyors, elevators and screens

In Your Plant or Mill



Pin bent to breaking point. Extreme bend shows toughness and cracking the hardness of surface.

Profitable production requires the selection of profit producing equipment. CHABELCO is designed for severe service and at the same time you will find the prices quite reasonable. CHABELCO has the right combination of hardness without brittleness—strength without softness. No flaws pass undetected. This is not done by guess work—every pin and bushing is tested individually under the scleroscope—the standard instrument for testing hardness. Pyrometers record the exact degree of heat during the case-hardening.

An investigation of CHABELCO Chain Belt will show you the economies you will save by specifying it.

Send for Catalog 54-P, giving complete tables and information

CHAIN BELT COMPANY, 16th Street **Milwaukee, Wisconsin**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

CONCRETE

The New York Barge Canal System

The completion of the New York barge canal system is not only an engineering achievement of the first rank but constitutes a permanent improvement that will have a tremendous influence for at least another century into the future for maintaining the commercial and industrial supremacy of the great Empire state. First rank in the American galaxy was first achieved by and for the state of New York through the early completion of her canal system, about the beginning of the nineteenth century.

The first heavy shipments of food stuffs out of the port of New York originated in the Erie canal and quickly made it the port of first importance, and gave the city itself a great boost which developed it into the metropolis of the nation.

Statistics show that nearly 75 per cent of the entire population of New York state at the present

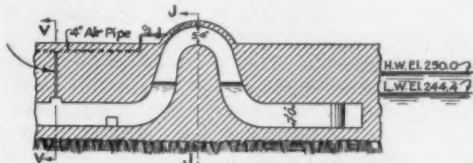


FIG. 1. SECTION OF SYPHON PRESSURES BALANCED.

time resides within two miles of its wonderful canal system. Roughly speaking the system consists of the main or Erie canal channel connecting the waters of the Hudson river on the east with those of Lake Erie on the west. The branch connecting the waters of Lake Champlain with those of the Hudson, another branch connecting the waters of the St. Lawrence river with the Erie canal, and several minor branches and connections.

The barge canal system has been under construction for five years and was done by the engineering department of the state for the purpose of increasing the facilities of water transportation so as to permit of the using of much larger boats with consequent greater carrying capacity than have ever been used in canal traffic heretofore.

For the benefit of those who have heard the lingo of sophisticated political waterway promoters it is proper here to state that the New York barge canal is not a ship canal, nor intended for any such purpose as the transfer of cargo steamers loaded in the great lakes to the waters of the Hudson and thence to the Atlantic Ocean so that they can lay their cargoes down in foreign ports, or the reverse of such a program in bringing foreign cargoes to Buffalo, Cleveland, Toledo, Milwaukee and Chicago, as has been very prominently and repeatedly stated by those who know little or nothing about the requirements and the minutiae of transportation operations.

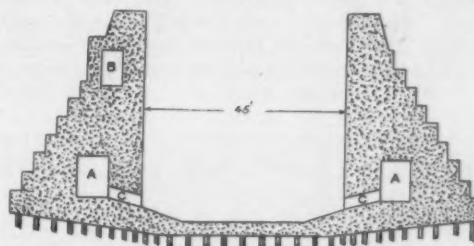
The pay roll of the crew of a lake steamer while passing through a canal nearly 400 miles long, having 35 locks, would be quite an item. The lake sailors would be useless in the canal trip, and likewise they would have a new trade to learn as soon as they got out into tidewater, for the knowledge or the licenses of lake officers would not carry a ship in safety to a foreign port, and a constant changing of crews would make such an undertaking entirely impractical.

There is no such thing as a ship canal except where the distance and the time consumed in the transfer make insignificant items of cost. With the remarkable improvement in recent years of

freight handling equipment the cost of transferring cargoes from lake or ocean vessels to canal boats or barges and vice versa is so low that it has been determined that no ship canal is economical which is longer than 10 miles.

Reloading cost is 15 to 25 cents per ton, according to the materials and description of packages handled. Such a charge in the items of transportation does not amount to as much as the employment of high priced vessels to carry the typical ton further than 10 miles into a canal. The cost of a lake or ocean going ship, built in America, is \$80 to \$85 per net ton carrying capacity, while the cost of a canal boat or barge is only \$5 to \$5.50 per net ton carrying capacity. The canal boat or barge requires but one or two men for its crew, while that of a lake or ocean ship is from 20 to 40 men, according to variations of the service. These facts demonstrate of themselves replies to many of the impractical suggestions above referred to.

The New York barge canal was designed and carried out by a set of public officials who knew the problems exactly from the experience of nearly a century as shown in the canal records of the state. It is a barge canal pure and simple, which means that it was designed and is equipped to transfer barges 300 feet long with 43 feet beam and drawing not more than 12 feet of water as the maximum capacity of any single unit. Such a barge will carry about 4,500 net tons of cargo, and its average loading capacity in operation could be safely put at 3,000 net tons. If the operating cost of the canal can be kept at the standard of \$1.00 per mile per floating unit, the total cost of transfer from lake to tidewater or vice versa, including two rehandlings of the cargo, would not be over 60 to 65 cents per ton, or a little more than one mill and one-half per ton per mile. This is altogether practical and feasible in the New York barge canal, constituting the cheapest and safest transportation ever offered to man for such a distance, and between such trade centers. Naturally all of the boats operating in the barge canal will not have full capacity, for there are already a large number of canal bottoms afloat in the canal system



CROSS SECTION OF LOCK CHAMBER—PILE FOUNDATION. AA—CULVERTS FOR FILLING AND EMPTYING LOCK. B—CULVERT FOR WATER POWER DEVELOPMENT. CC—PORT-HOLES CONNECTING CULVERT WITH LOCK CHAMBER.

of New York, many of which will carry through freight in the new barge canal.

In locating the barge canal, in several places it was found advisable for engineering and economic reasons to depart from the old line of Erie canal, and this left stretches of the old canal, some of them running through important cities which have been recommended for abandonment by that class of citizens who have never had any direct connection

with canal traffic, and who, for that reason, are not aware of the value that the canal is to any community through which it passes and consequently to each individual citizen thereof. The case of the city of Syracuse, for instance, might be cited. Here the established line of the Erie canal runs through the heart of the city, and both of its banks are built up with manufacturing establishments whose quays and wharfs are as busy as any in this country. The traffic of the canal had more to do with building up the importance of the city than any other factor, and its prosperity still depends in large measure upon the presence of the canal, which is an economic asset to nearly all of its most successful business enterprises.

In place of abandoning this and other stretches of the Erie canal similarly conditioned, it should be connected with the new barge canal at both ends by whatever engineering devices as would be found necessary by the local requirements, and so continued in service for such a size and draft of canal boats at least as it at present carries for the accommodation of the commercial enterprises more or less dependent thereupon. It is safe to say that there never will be too many miles of improved waterway in the state of New York at any time. The abandonment of any of the mileage already proved to be useful and serviceable would be

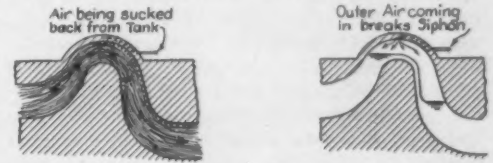


FIG. 2. SYPHON FLOWING FULL (AT LEFT), SYPHON BEING STOPPED (AT RIGHT).

an act of folly, not at all in line with the intelligence which the New York canal officials have exhibited in the past, and especially in connection with all of the details of the construction of the new barge canal system. Every possible available mile of waterway, including the canal feeders, in which a boat can possibly move, should be conserved for present use and for future improvement when the need arrives for larger dimensions and greater capacity than that which now exists in these well constructed stretches which have been left out of the main barge canal system. The tremendous tonnage already moving in such stretches of canal and the absolute certainty of a growing pressure for their greater employment in the future is evidenced by the need which culminated in the construction of the barge canal system itself.

In the construction of the 57 locks in the entire barge canal system, there has been used tremendous quantities of concrete. The illustration on the front cover of this number shows a typical lock, both walls and the bottom of which are constructed of concrete. This, like all of the other locks, is largely operated by electricity. The maximum size barges, with boat and cargo amounting to 5,000 tons, requires considerable power for handling at the approaches and wings of the locks. For this purpose 20 horsepower electric motors have been provided to operate capstans at a speed of about 60 feet per minute, and estimated to give a pull of about 8,000 pounds, fully sufficient for handling such loads. The operation of these capstans is controlled by foot switches laid flush with the top of the concrete lock walls so that craft can be handled very economically.

It may be stated that in the first construction of canal improvements in this country, about a century ago, the size of the locks as well as the size of the boat and its cargo tonnage was determined by the practical capacity of a man with a pike-pole to handle the boat at the approaches and wings of the locks. It was found that 125 tons loaded on a boat having a draft of three feet was just about the measure of a man's ability to han-

dle in the navigation of a canal. The boats were patterned thereby and the engineers provided locks for such boats. Without electric or some other application of power it would be impractical to handle canal boats of such capacity as the New York barge canal system has been designed to accommodate.

All the motors incorporated in the lock operating machinery are designed to be fire- and waterproof. Telephone systems are installed, connecting the several locks. These systems are so designed and equipped that it will be possible at any time to extend them, so that a general system along the entire canal will result.

A most interesting engineering feature noted in Figs. 2 and 3 is the siphon lock. In the city of Oswego, the only lock of this type on the barge canal has been built and tested. The general design of the culverts is similar to that of a lock of ordinary type, except that the upper and lower ends the culverts are curved up so as to form necks, which rise a little above the highest water-level and which at the same time are shut off from all communication with the outer air, except through the operating pipes. The flow of water is started in the siphon by means of tanks, one being built in each wall near the upper end and communicating through pipes with the upper and lower levels and with both siphons in the same wall and being shut off from all other communication with the outer air. In operation the tank is first filled with water; then the intake valve is closed and the outlet opened. There results a body of water suspended by its weight, but tending to escape into the lower pool, thus producing the necessary vacuum. On opening the air valve, air from the siphon rushes into the vacuum and water begins flowing over the crest in the neck. Using both siphons the lock chamber can be filled in from $4\frac{1}{2}$ to 5 minutes, while it can be emptied in from $5\frac{1}{2}$ to 6 minutes. It has been found that the draft of the siphon is such that soon after the flow has started the direction of the air is reversed and the vacuum is restored in the tank. Thus the operating power is self-renewing and, except for air leakage, lockages can be conducted by merely manipulating the 4-inch air valves.

At Little Falls there has been built a lock notable for its high lift, $40\frac{1}{2}$ feet. The lower gate of this structure is of the lift type, the only instance of lift gate on any barge canal lock, except the guard-locks at the Genesee river crossing. At two places, Lockport and Seneca Falls, there are combined, or tandem, locks, a flight of two locks at each place. In each case also the normal combined lift is 49 feet.

It may be stated that portion of the old Erie canal between the Barge canal crossing near New London and Butternut creek feeder is to be retained as a navigable feeder and connection is made with the new channel by a junction lock, 188 feet long between gates, 45 feet wide and with 12 feet of water. Two other junction locks join the new line to other lateral canals—the Black River Canal at Rome and the Glens Falls feeder at Fort Edward. Also four locks have been built on the Black River canal where the new Delta reservoir necessitated a relocation of that channel.

In order to maintain navigation on the old canal between Cohoes and Schenectady during Barge canal construction, a small lock has been constructed at the north end of Vischer's Ferry Dam. This lock will be retained as an auxiliary for the passage of small boats after the completion of the Barge canal. The act makes provision for one other lock—where the old Erie canal enters the Hudson at Albany.

It will be seen that the Barge canal locks are being built of concrete throughout, both side and cross walls and floor. At a few points, where favorable rock is encountered, the concrete floor has been dispensed with. The side walls are 5, 6 and 7 feet wide at the top, according to local cir-

cumstances, and vary in height and bottom width with the lift of the lock and certain other conditions. In some cases, where one side of a lock is exposed to a river channel, the top width is increased to 12 feet. The lifts range from 6 feet to $40\frac{1}{2}$ feet. Both the differences of lift and the fluctuations between normal and high navigable stages govern the heights of the side walls, which vary from 28 feet to 61 feet, with an extreme at one point of the lock at Little Falls of 80 feet.

It is pointed out that the bottom widths of these walls, which range between 13 and 34 feet, are determined by the height of the walls, the nature of the foundation and certain incidentals of design at each lock. Unless a rock or hardpan foundation can be obtained, piles are driven under practically all locks. Within each side wall runs a culvert for filling and emptying the lock. The culverts are connected with ports that open into the chamber at the bottom of the walls. These culverts vary in size, the dimensions being 5 by 7 feet for locks of 12 feet lift or less, 6 by 8 feet for lifts between 12 and 23 feet, and 7 by 9 feet when the lift is 23 feet or more. Connected with the 5 by 7 culverts are 16 ports, 8 on either side, while the number is increased to 22 with the 6 by 8 culverts and 28 with the 7 by 9 size. The ports have been made both by imbedding cast-iron pipes in the concrete and by leaving rectangular openings in the concrete walls, the latter being the more recent method. The area of opening in either case is about $7\frac{1}{2}$ square feet each. In some of the locks there is another culvert through one of the side walls—a feature of the hydro-electric development for operating and lighting the locks. Local conditions and the proximity of two or more locks have determined where these power plants shall be placed. At some points one plant will serve several locks, as at Waterford, where the series of five locks receives power from the plant at Crescent dam. Reinforced concrete power station, 20 by 30 feet in plan and about 20 feet high, are constructed adjacent to the various locks. These stations with their dark green tile roofs present a very pleasing appearance. There are thirty-three hydro-electric power stations, two gasoline-electric power stations and three substations which supply all the power for operating and lighting the 57 locks of the entire Barge canal system.

The building material industries, more than any other, are vitally affected by the opportunities for water borne traffic in the New York barge canal. Such tremendous tonnage of low priced commodities are not known to any other industrial group, nor are any so sensitive and responsive to freight rates. Cement, plaster, lime, brick, sewer pipe, crushed rock and sand, make up a list of the cheapest as well as the most indispensable traffic items of modern civilization, and the lower freight rate between the Atlantic seaboard and the upper St. Lawrence basin of the Great Lakes constitutes a far reaching benefit to the actual traffic of interstate commerce which is practically beyond computation, affecting as it does, with its benefits fully one-third of the population of the United States.

The contemplated improvement of the Illinois and Michigan canal in Northern Illinois connecting the waters of Lake Michigan with those of the Illinois and Mississippi river has been held in suspense for many years owing to the impractical guidance of politicians, the interference of railroad competition and the perplexities introduced by hydro-electric promotion schemes in connection with the disposition of surplus water in the diverted auxiliary natural streams. This canal transverse a Continental Divide fully equal in importance to the commercial and industrial interests of the whole country as that traversed by the New York barge canal. The distance is only about 90 miles all told, and the present canal, having the same capacity and lockage facilities of the same dimensions as the old Erie canal, has been in constant service for more than 60 years and has long needed the same

kind of improvement, and will doubtless be done along similar lines to those adopted by the canal authorities of the State of New York.

INFLUENCE OF TEMPERATURE ON CONCRETE.

"The Influence of Temperature Upon the Strength of Concrete," by A. B. McDaniel, has been issued as Bulletin No. 81 of the Engineering Experiment Station of the University of Illinois. This bulletin presents a study of the data obtained from three series of tests of concrete cubes and cylinders. These specimens were stored under temperature conditions varying from 25 to 90 degrees Fahrenheit, and were tested at various ages up to 28 days. Curves are presented to show the relation between strength and age for different temperature conditions, and also the relation between strength and temperature at different ages. The results are summarized in a set of curves which show the percentage strength of concrete at different ages and under different temperature conditions to that at an age of 28 days and under a normal temperature of 70 degrees Fahrenheit.

The results of the tests made under freezing temperature conditions are of especial interest; showing the gradual and slow gain in strength under a storage temperature slightly below freezing, and the disintegrating effect of alternate thawing and freezing temperatures.

The bulletin will be of value to those engaged or interested in construction work for information regarding the strength which may be expected of ordinary concrete under different age and temperature conditions and the time for the removal of the forms. Copies may be obtained gratis upon application to W. F. M. Goss, director of the Engineering Experiment Station, University of Illinois, Urbana, Illinois.

WELL-KNOWN PITTSBURGH CONTRACTOR DEAD.

Michael O'Herron, aged 59, died at his home at 714 Grandview avenue, Mt. Washington, October 14, of pneumonia. He had been for years one of the leading contractors in street work in the Pittsburgh district. He joined the forces of the Standard Oil Company away back in 1879 and was promoted to superintendent of construction, in which position he remained until 1884. At that time he came to Pittsburgh in the employ of the Carpenter Gas Company. He was made superintendent of the Southside Division of the Philadelphia Company and stayed with that concern until 1892. Then he organized the contracting firm of Cronan & O'Herron, which soon secured some of the largest contracts in the country. This firm was dissolved in 1903 and the M. O'Herron Company was formed. In 1906 Mr. O'Herron formed the firm of McCarthy & O'Herron, with headquarters at Baltimore. This firm secured several big sewerage contracts in different sites and was dissolved a year ago, the successor being O'Herron & Son, Inc. In the Pittsburgh district Mr. O'Herron had been unusually fortunate the past year in getting big contracts, as his firm was raising all the streets in the flood districts, and also bought the contract for excavations for the city-county building on the hump and for a large amount of street work on the Southside.

William T. Buchanan, 80 years old, one of Louisville's pioneer contractors and builders, died recently at the home of his daughter, after a long illness. Among the largest buildings erected by Mr. Buchanan was the Wilkes Block. For the past twenty years he had been residing at Jefferson-town, Ky. The funeral was conducted by the Masonic order, with interment in Cave Hill Cemetery, at Louisville.

Tower Grove Station and Viaduct.

The new concrete viaduct and Tower Grove Station in St. Louis, Mo., represents a total outlay of \$800,000 and contributes a permanent improvement to the transportation accommodations of that great city which is unique in every respect. Special problems to be solved were that Tower Grove and Vandeventer avenues, two wide intersecting thoroughfares with car tracks of the Frisco and Missouri Pacific railroads, both having heavy suburban and industrial service at that point—the Frisco railroad having about 56 passenger and freight trains crossing it every twenty-four hours, while approximately 519 street cars crossed it in the same period.

It may be stated that the engineers decided that to construct the viaduct, it was necessary to lower the railroad tracks 12 feet and elevate the street 13 feet. In order to secure the low grade for which the viaduct will be noted, it was necessary to extend the track depression for a distance of 4,500 feet, or from the East end of the Chouteau avenue yards to Kingshighway. This depression reached a depth of 16 feet below the original level, and, as the streets were raised 12 feet, a total clearance of 22 feet from the top of rail to the under side of the beams was secured and the grade of the Frisco's tracks at Tower Grove was reduced from 61 feet per mile to 40 feet per mile.

It is pointed out that among the interesting engineering problems involved in the construction of the viaduct was the taking care of traffic of three steam roads, two electric street car lines, besides innumerable wagons, vehicles and pedestrians. In order that this traffic might meet with little or no inconvenience, work was started on the Vandeventer Avenue retaining walls by the Frisco, and just previously the Missouri Pacific railway started on the walls at Tower Grove avenue.

It is stated that the steam shovel started at the west end of the cut at Kingshighway, and after reaching the Oak Hill branch of the Iron Mountain with its cut, a temporary bridge was driven to support the Iron Mountain track. When the steam shovel reached Vandeventer avenue, a temporary bridge was driven at Tower Grove avenue to take care of traffic while the steam shovel cut was being made through.

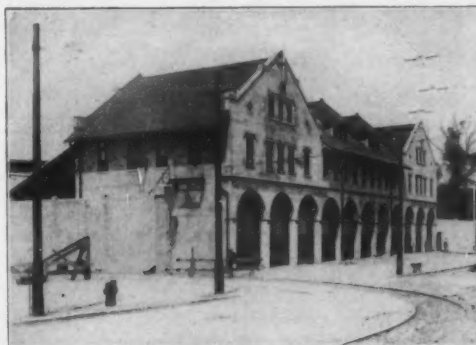
It is of interest to note that the Frisco viaduct proper is 172 feet long on Vandeventer avenue and 230 feet long on Tower Grove avenue, and the various approaches are as follows: Vandeventer avenue 420 feet, Tower Grove avenue 460 feet; Folsom avenue 380 feet, Park avenue 400 feet; and Blaine avenue 50 feet. With the completion of the viaduct and consequent low level of the tracks, it was necessary to make unique and decided changes and improvements upon the station. The first problem was that of adding an entire story under the two stories of the station without disturbing the offices or patrons in the floors above. To do this it was necessary to undermine the station and build concrete walls as rapidly as possible and has resulted in a large room to be used for boiler, toilet and excess baggage purposes.

It may be stated that the stairway, which consists of two flights—one from the viaduct to the waiting room and the other from the waiting room to the train level—is of concrete and gives ample protection from the weather, but that which attracts most attention about this stairway is the arrangement of steps with openings at the back, so contrived that water or snow will disappear from the steps five minutes after it has fallen upon them, thereby overcoming the danger of slippery steps, which is further avoided by a banister running down the center. Arrangements have been made for automobiles to bring passengers to the waiting room entrance of the station and a large hood has been erected at this point to protect them in case of inclement weather; also another hood has been placed at the head of the stairway for the protection of passengers waiting for street cars.

The Tower Grove station is practically a new station. Rooms of the office upstairs have been remodeled and a large meeting room has been constructed. The platform, where the street car is taken, has a lighting system which is unique, and will be adopted as a standard on the Frisco railroad. The stairway has attracted the attention of many architects, and, it is said, the building department of the city of St. Louis will adopt it as a standard.

"Braves" Ball Park of Concrete.

The Boston National league baseball park, where some of the recent championship games were played, is credited with being the largest baseball



ADMINISTRATION BUILDING AND MAIN ENTRANCE TO "BRAVES" BALL PARK.

plant in the world. It is so big inside, as a structure, all made of concrete except the roof and benches, that no photographer with his widest angle lens has produced a decent complete picture of it yet. About the best newspaper camera men could do was to climb into the first base side of the big amphitheater and take a slant towards left-field bleachers across the home plate.

Aside from the big grandstand, a fine administration office building and a large street railways terminal, which will hold 42 cars at a time, are features. The office and terminal structures are of concrete construction, too. James E. Gaffney, owner of the "Braves" and the ball park, put up the plant himself, the work being conducted by the Gaffney Construction Co. About 30,000 barrels of cement were used and it is estimated the big plant cost \$600,000.

It is stated that 43,400 persons can be cared for on the field, which is about 8,000 more than the biggest crowd that attended the world series games at the Polo grounds, New York, in 1912. There are 18,000 seats in the 37 rows in the grandstand. The left-field bleachers will accommodate 10,000, the right-field bleachers 9,000 and the 25-cent section 4,500.



LOCATION OF TOWER GROVE BEFORE IMPROVEMENT.

The distance from the grandstand to the plate is 60 feet. From the home plate to the extreme foul lines is 375 feet on both sides, while the flag staff in center field is 520 feet away and the distance on a direct line to the score board in center field is 440 feet. Concrete walls inclose the field instead of fences—and there is no advertising on them.

Interesting Job at Victoria, B. C.

Demonstrating the success of the new launching plant installed at Rosebank, B. C., by Messrs. Grant, Smith & McDonnell, contractors for the Government piers now well under way at Ogden Point, the third crib to be launched in connection with the contract was recently successfully floated.

Shortly after the caissons had been set afloat it was taken in tow by the tugboats Tartar and Mystery and hauled from Esquimalt harbor to the site of the piers, where every preparation had been made for the sinking of the crib in position. Necessarily slow, the passage from Rosebank to Ogden Point was made in about six hours, and upon arrival off Ogden Point the mass of floating concrete was secured by means of mooring lines to await the action of the tides preparatory to sinking it in place.

It was required that the crib be kept afloat until extreme low tide, and during the night the valves were opened, allowing the compartments to fill with water, sinking the solid structure of walled concrete. The scene at the final stages of the operations was heightened by the glare of powerful electric lights which have been installed on the pier site to facilitate the carrying out of the work at night, when, as in the present case, the tides are lowest.

Prior to the launching of the crib from the Rosebank plant, the marine railway was thoroughly tested out by lowering the crib several times and hauling it up again. Everything went off successfully, and credit for the launch is due to H. W. Bassett, manager for Messrs. Grant, Smith & McDonnell, under whose supervision the building platforms and launching ways have been constructed.

Strength of Sliding Platforms.

Two other complete cribs are ready for launching at Rosebank, while the floor of another has been laid, and the steel is now being placed in position for the walls.

On the specially designed building platforms, which are on heavy piling, three or four cribs can be constructed at the same time. The platforms are so constructed that they operate on steel rollers, each platform being capable of carrying a weight of several thousand tons. As each crib weighs from 2,500 to 3,000 tons, some idea of the size and strength of the sliding platforms is gained. Three powerful donkey engines are used in the launching operations; one to haul the platform, containing the crib, on to the cradle resting on the marine ways; a second to lower the tremendous weight down the ways into the water, and a third for the "back haul."

When the crib finally reaches the water and is well afloat she has about 12 feet of freeboard. Some few feet below, at various intervals around the walls, are located the valves, which, when released, permit an inrush of water into the compartments in which the concrete structure is divided. Calm weather is necessary for the sinking operations, as an unexpected sea shipped over the walls would cause the crib to sink quickly, with the possible result that it would be out of the desired position. A total of 53 such cribs are to be constructed for piers Nos. two and three. Two have been in place for some time, and, counting the one launched and sunk recently three others are complete, while another is well under way. Now that the launching ways have been thoroughly tested, it is expected that the launchings will occur frequently.

The construction of extensive dock improvements at Portland, Ore., involves a large amount of concrete work. All the warehouses will rest on reinforced concrete piles, and a reinforced concrete viaduct, 30 feet wide and 180 feet long, is to extend along one end of the slip to the open dock. This viaduct will be supported on twenty-five concrete piles.



SECTIONS OF PIPE KEPT MOIST WITH WET CLOTHS.

Building Sewer Pipe "at the Job."

In constructing a storm drain in Los Angeles, it was found an economy of time and labor to manufacture the sections of five-foot pipe "at the job," and portable forms of iron were used for the purpose with complete success. The additional economy of securing the sharp sand and gravel from the excavation was possible in this case, as the sewer was laid in a soil composed of just that material, with no organic material, and screening was about all the treatment required.

Every few blocks along the course of the drain a small factory was installed in the street, where a few workmen set up the metal forms, poured the mixture, kept it moist with wet cloths and finally removed the forms and cared for the details of the curing process, so that when the actual work of laying the drain was commenced, the pipe was convenient for use. Expensive drayage and the risk of breakage was thus eliminated.

An idea of the size of the pipe on the main line may be secured by comparing it with the man in one of the accompanying illustrations. The heavy walls were jointed and in the bottom of the sewer a depression was left for the single course of brick, which formed the floor of the sewer, acting as a protection for the concrete against rolling stones and gravel.

Plan \$6,000,000 International Dam.

Plans have been prepared by Charles F. Z. Caracristi, of Washington, D. C., consulting engineer of the International Boundary Commission of Mexico and the United States, for a proposed international reinforced concrete dam that is to be built across the Rio Grande in Santa Helena canyon, at the mouth of Lajitas Creek, near Terlingua. The estimated cost of the structure is \$6,000,000.

The preliminary survey and plans for the proposed dam were made in fulfillment of an act of the last congress which appropriated \$50,000 for the purpose. The primary object of the dam is to control the flood waters of the Rio Grande which come from the Conchos river and thereby aid in preventing the disastrous overflows that occur periodically and do great damage to the cultivated valleys bordering the lower course of the stream. It is to be one of the series of dams that it is planned the United States and Mexican governments shall build across the Rio Grande.

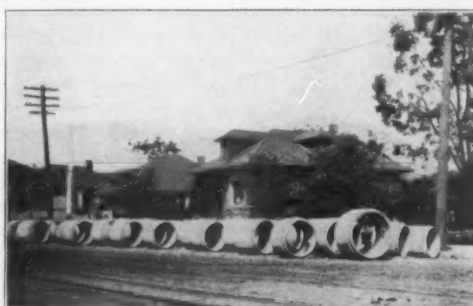
The dam for which Mr. Caracristi has prepared plans will create the largest artificial lake in the world, he says. The dam will be 370 feet high and 600 feet across. Its thickness at its base will be 250 feet. The storage capacity of the reservoir will be 13,576,000 acre feet. The water supply will be available for irrigating large tracts of land on the two sides of the river and for generating about

48,000 horsepower of electrical energy. In order to carry the project to fulfillment a joint treaty regulating the control of the waters of the international boundary stream and authorizing the construction of dams for control of the flood rises will be necessary, it is stated.

Concrete News Notes.

The county commissioners of Douglas county, Kansas, at Lawrence, let on Oct. 14 the contract for the construction of a concrete bridge over the Kaw on Massachusetts avenue to the Missouri Valley Bridge & Iron Co., Leavenworth, Kan., at \$199,910. The job will use about 18,000 barrels of cement. It is said that the successful bidder has three outfits available, either of which could handle the job, and that it is so prepared that it can complete the work profitably. It was reported that many Kansas City firms had made estimates, ranging as high as \$260,000; they were deterred from bidding by the report that less than \$130,000 would be available to pay for the work. The bids were received Oct. 6, and the award was delayed by a dispute as to the distribution of revenues from public utilities using the structure.

The Ferro-Concrete Co., of Harrisburg, Pa., with a bid of \$55,500, was low bidder on the new bridge between Mt. Clair and Phoenixville across the Schuylkill river and will in all likelihood be



FIVE-FOOT PIPE SECTIONS BUILT AT THE JOB.

awarded the contract. C. M. Field, of Pittsburgh, was high bidder with a proposal of \$92,800. Others who bid upon the job are B. A. Sheeler, of Pottstown, and L. H. Focht & Son, of Reading.

Paving operations constitute the largest prospect for concrete work this fall in the Kansas City district, although several fair building jobs are on hand and in sight. The Geo. A. Fuller Construction Co. will lay the foundation and build the floors of the St. Joseph's hospital building, to cost nearly one-half million dollars. The floors will be of reinforced concrete, of concrete tile construction, finished with encaustic tile, wood and cement. There will be about six thousand yards of concrete work, and "Dewey" cement will be used. The



CONCRETE PIPE FACTORY IN THE STREETS.

Fuller company is erecting the Ridge Building, Kansas City, which has a steel frame and concrete arches. The floors will be surfaced with encaustic tile on wood.

The San Francisco Board of Supervisors has appropriated \$50,000 for the construction of the first section of the San Francisco-Ocean Beach esplanade. This section will include a six hundred and fifty-foot length of the reinforced concrete bulkhead wall, and steps running from the curb to the beach. Bids for the week will be opened in a few days. It is planned to continue the work along the beach for a distance of between one and two miles.

An issue of \$50,000 bonds was recently voted by the people of Denison, Texas, the proceeds to be used in the construction of a reinforced concrete viaduct to connect the business center with the south side of that city.

The city council, of Cleburne, Texas, has taken steps to build a concrete bridge over West Buffalo creek on Poindexter avenue. It will be 120 feet long and 20 feet wide.

The Texas Telephone Co. has purchased a site at Waco, Texas, upon which it will erect a reinforced concrete exchange building to cost about \$80,000.

Practically all of the concrete for the new union railroad station that is being erected here by the Dallas Union Terminal Co. has been poured. This building and the terminal improvements will have cost about \$5,000,000 when finished. The marble and tiling in the new station will cost about \$40,000.

The Shipplett Concrete Co., Huntington, W. Va.; capital, \$20,000; incorporators, G. D. Shipplett, Greenup, Ky.; C. N. Davis, D. W. Brown, J. L. Caldwell, Jr., and Pauline Breden, Huntington, W. Va.

A new concrete road is being agitated for between Ottawa and Prescott. Work is being carried on rapidly on the Toronto-Hamilton highway. There are about fourteen miles completed. For this road the following materials will be used: stone, 150,000 tons; sand, 75,000 tons, and cement, 125,000 tons.

H. A. Frankenstein and others are reported to build plant to manufacture reinforced-concrete pipes by special vibrating process at Dallas, Tex. The plant will be equipped with hoisting cranes and 5 curing tanks and will cover two acres. The estimated cost is \$20,000.

CONCRETE ENGINEER PASSES AWAY.

O. R. Pihl, of the engineering firm of Pihl & Miller, Wabash building, Pittsburgh, died suddenly of heart disease Oct. 14. Mr. Pihl was born in Norway and was one of the best-known concrete engineers in that city. His firm had always been largely interested in stone and of late in concrete construction. Among recent contracts were many for big coal mining tipples, railroad tunnels and other railroad work.

ROAD BUILDING

Planning Illinois Highways.

The commercial clubs of Illinois have formally brought to the attention of Governor Dunne the desirability of inviting authority by vote of the people for the issuance of \$10,000,000 in bonds to build approximately one thousand miles of permanent roads, these roads to follow four routes about as follows:

One north and south route along or as near as practicable the third principal meridian which bisects the state, and three east and west routes dividing the state into as nearly four equal parts as is feasible, using the present dirt roads on all routes as far as practicable, and keeping in mind the broadest service to the population centers, doing this as nearly as is permissible by an even geographical division of the state.

The clubs backing the proposal suggest no special kind of material for road construction save that they ask that these roads shall be of a permanent nature. There live in the counties directly touched by the proposed through routes about four-fifths of the people of Illinois, or, literally speaking, from basis of the last census, 4,112,217 of a total population of 5,638,591. Eighty-three of 102 counties are on or immediately adjacent to the projected system of permanent roads. Forty-nine counties are directly touched and 34 are not more than 10 to 15 miles distant from some point of the system, and these could be quickly connected up by way of county state aid under the Tice law.

The proposed permanent roads would touch 44 of the 51 senatorial districts. It is estimated that the total mileage involved in such improvement is about 1,000. It is the idea that the upkeep of the system should be taken over by the state under the Tice law, and it is suggested that the counties might provide for the necessary bridges.

The cost of permanent roads, such as brick or concrete, is estimated to be about \$10,000 per mile, and therefore the system would require an expenditure of \$10,000,000.

If a special session of the legislature is held, it is the hope of the promoters of this idea that Governor Dunne will include this road improvement project in his call.

LOWE EXPECTS ADDITIONAL IMPROVEMENTS.

J. M. Lowe, president of the National Old Trails Highway Association, with headquarters at Kansas City, declares that the voting of \$55,000 of bonds for road improvement by the Wellington, Mo., road district on Oct. 8, is only the beginning. This bond issue will finish a short stretch of road that now gives a rocky highway for more than 53 miles eastward from Kansas City, with only a small stretch which will doubtless be immediately improved intervening. Several other districts, Judge Lowe said, will probably vote bonds soon—the association helped in the Wellington campaign, and will continue its efforts to get elections for bonds in the other districts. The association hopes to have the projects for rock roads all the way to St. Louis well under way within a year.

EXPERIMENT ROAD FOR LOUISIANA.

Louisiana has no concrete roads. The State Highway Department will build a road of concrete just as an experiment. If the plans of the department

are not delayed the road will be under construction in time for the Baton Rouge fair, early in November, and the work will be viewed by thousands of visitors.

The site selected by the department for their experiment is located between the city limits of Baton Rouge, La., the state capital, and the Hammond & Eastern Railroad. Thus will Louisiana's first concrete road be a reality. The highway engineers are quoted as follows:

While in the nature of a demonstration, we are convinced, from experience of other states, that concrete roads are the best and most durable kind that can be built and are comparatively cheaper than other roads for the reason that they last several times as long. The part of the plank road selected for the demonstration road is well adapted for the purpose for which it has been chosen.

Chicagoans Dedicate Highway.

Two hundred automobile loads of good roads enthusiasts from Chicago and nearly every town in Cook county rallied at the Art Institute, Chicago, on Oct. 16, and motored out Milwaukee avenue for the dedication of the recently completed two-mile stretch of state highway which stretches northwest from the city. It was, as William G. Edens, president of the Associated Good Roads Organizations of Chicago, expressed it, "An automobilizing of good roads workers." Conspicuous among the attendance on this festive occasion were sales managers, publicity men and road enthusiasts connected with the various cement organizations, having their headquarters in Chicago. Robert F. Hall, publicity manager of the Universal Portland Cement Co., and chairman of the streets and alleys committee of the City Club, assisted in the services of dedication and through his efforts all of the young ladies who have had a hand in dedicating new roads in various parts of the country were present.

Miss Louise Redfield, daughter of Attorney Robert Redfield, served as "Miss Niles," and amid plaudits of the citizens of Niles broke a bottle of perfectly good champagne on the highway. While the dropping was quite simple "Miss Niles" had the cooperation in the task of Miss Ardath Walter, daughter of the contractor who completed the improvement, William G. Walter, of Glenview, Ill.

A number of noted Chicago and Cook county highway enthusiasts took part in the exercises just preceding the dedication on the lawn in front of "The House That Jack Built," a neighboring popular retreat for Chicagoans.

The dedication marked the using up of the last dollar immediately available for highway improvement in the county "but only a start" toward the completion of highways leading out of Chicago to the limits of the county. The highway adjoined a stretch of concrete road which had been dedicated a year previous. Together there is now a stretch of seven and one-half miles of concrete highway at that particular place. This constitutes the longest concrete roadway in Cook county.

WORK PROGRESSING ON CANADIAN HIGHWAY.

Eleven miles of the 40-mile highway between Toronto and Hamilton have been completed. The roadway is 66 feet wide. The concrete paving is 18 feet wide with a shoulder of three feet on each side.

For the paving it is estimated that 150,000 tons of crushed stone, 75,000 tons of sand, and 125,000

barrels of cement will be required. The material is received at yards at Port Credit, Oakville and Waterdown, where it is unloaded from cars by locomotive cranes, fitted with clam-shell buckets, and is distributed over industrial railways by three dinky engines.

STATEMENT OF OWNERSHIP OF ROCK PRODUCTS AND BUILDING MATERIALS.

(Required by Act of Congress, Aug. 24, 1912.)

ROCK PRODUCTS AND BUILDING MATERIALS is published semi-monthly at Chicago, Ill.

Editors, E. H. Defebaugh and F. K. Irvine, 537 South Dearborn street, Chicago.

Managing editor, F. K. Irvine, 537 South Dearborn street, Chicago.

Business manager, E. H. Defebaugh, 537 South Dearborn street, Chicago.

Publisher, the Francis Publishing Co., 537 South Dearborn street, Chicago.

Owners: E. H. Defebaugh, 537 South Dearborn street, Chicago.

F. K. Irvine, 537 South Dearborn street, Chicago.

G. A. Olsen, 537 South Dearborn street, Chicago.

Estate of W. A. McCall, 537 South Dearborn street, Chicago.

Known bondholders, mortgagees and other security holders, holding 1 per cent or more of total amount of bonds, mortgages or other securities: None.

E. H. DEFEBAGH, Business Manager.

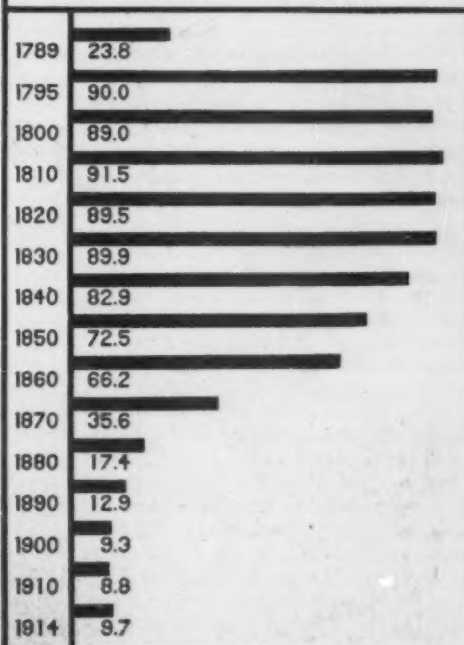
Sworn to and subscribed before me this twenty-seventh day of September, 1915.

JAMES S. PENNINGTON, Notary Public.

My commission expires Oct. 24, 1916.

The Reason Why the United States Should Have a Larger Merchant Marine

PERCENTAGE OF OVERSEAS COMMERCE CARRIED IN AMERICAN VESSELS IN SPECIFIED YEARS 1789-1914



THE NATIONAL MARINE LEAGUE OF THE UNITED STATES
WILSON BUILDING, WASHINGTON, D. C. 15 OLD SLIP, NEW YORK

With the QUARRIES

Expansion of Profits Is Possible

The greatest difficulty that has always defeated the operator of a rock crusher has been the cramped limitations of delivery. The cheapness of the product with its enormous tonnage has always held down the commercial growth of the operation to a strictly local proposition. It has indeed been limited in direction to the line of the railroad that serves the plant. Occasionally a crushing plant is fortunate enough to be so located as to be able to use two intersecting railroads and ship in four different directions from the plant to such a distance as the railroads will haul the crusher product for a minimum of 25 cents per ton up to 50 cents per ton in carload lots.



FIVE-TON KISSEL HAULING CRUSHED ROCK IN DULUTH, MINN.

In addition to the railroad service there is nearly always the more or less important item of direct delivery to teams, which consists of loading the wagon of dealers, contractors, farmers or other transient customers at the crushing plant for the standard dollar a load or thereabouts. Such deliveries have always constituted the most profitable branch of the business, but its volume has ever been curtailed and very limited.

The records of a crusher plant which has been in constant operation for thirty-nine years show that the longest haul by a farmer's team ever sold reached just six miles from the crusher bin beneath which the wagon was loaded by a spout up to the first of April, 1915. The old record showed that practically every landowner within a radius of three miles of the plant had at one time or another

bought some crushed rock or screenings, and in fact, nearly every year one or more loads had been purchased by all of the landowners. Nearly every item was marked as a cash transaction, and only one loss was recorded in this branch of the selling campaign of thirty-nine years. It amounted to \$1.00, and was occasioned by a breakdown in which the load was dumped upon a country road. This very naturally happened in a very bad soft spot where it accidentally made such a marked improvement that it became the topic of neighborhood conversation, and afterwards lead up to the township covering three miles of that road with six inches of rock ten feet wide, so that the crusher man refused to accept the dollar when it was proffered to him by the father of the farmer boy who sustained the accident.

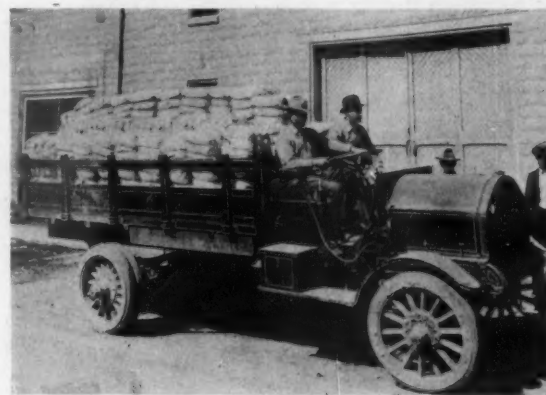
The dollar a load which seems to be the standard price for team deliveries through all the thirty-nine year period actually amounted to 85 to 90 cents a ton, for few of the wagons carried much over a ton and the customer was often willing to pay the dollar for as much as he needed for the particular purposes he had in hand when that amount happened to be considerably less than the full wagon box. The experience of many other crushing plants is parallel to the one we have just described.

Turning now to the deliveries that went out in carload lots on the railroad, the first thing to be observed was a big ballast contract at 40 cents a yard. That was a long time ago, but there were a good many of the same kind at 50 cents a yard, and one or two at 35 cents a yard. We blush to say that one of the latter was shipped in the year of enlightenment, 1914.

One very long account amounting to 28,000 tons had been shipped to a tunnel contractor in a big city who went broke in the middle of his contract; and after prolonged litigation the crusher man was able to get a settlement which about netted 12½ cents per ton. Another item showed the rejection of four cars through political manipulation in connection with the contract of the foundation for the

city hall in the same big city. The four cars were switched to another operation which was not ready for the material and a demurrage bill was incurred, leading to a dispute with the railroad company which afterwards used or lost the material with the result that the crusher man never got paid for it at all.

Of course, such things do not happen every day, for nearly every customer eventually settles upon a much better basis than any of those cases just cited. Nevertheless, the dollar a load customer, if he can be cultivated and increased in numbers so as to multiply his tonnage up to the place where he takes a large proportion of the product of the plant is a very desirable thing to consider. This has long seemed to be an impossibility, and has never been looked upon by the practical crusher man as anything more than an insignificant feature



EARLY KISSEL INSTALLATION WHICH HAS MADE GOOD.

of the sales department, more of an accommodation to the neighbors than a commercial possibility for the crusher operator.

Now here is the rising sun of promise. Along about the first of April, 1915, a second-hand motor truck was purchased at a bargain as an experiment. It was good for about three tons with good luck at first, but soon it was discovered that a two-ton trailer could be added without serious inconvenience to the equipment, making a fast five-ton outfit. Results show that twenty-five tons per day average have gone out from the crusher with the motor truck outfit at 80 cents per ton net where the haul was within a mile and a half or \$1.00 a ton net where the haul was between two and four miles. The truck has made deliveries as far as eleven miles from the plant and made three trips a day, in which case \$1.00 a ton was charged plus \$1.00 per ton for the delivery of the crushed rock to a concrete contractor at a bridge job on a country road. This netted the contractor a saving of 75 cents a ton on the material so delivered—argument enough to secure future business.

A surprising record has been made with the motor truck equipment, demonstrating that farmer customers of the immediate neighborhood have very promptly responded with cash orders to the proposition of the crusher man delivering his material on their premises several miles from his plant. Such customers who have contented themselves with one load a year or possibly two loads, amounting to a little more than a ton per load, are glad to pay \$5.00 for five full tons delivered by the motor



PART OF FLEET OF PACKARD MOTOR TRUCKS USED BY THE BARBOUR ASPHALT PAVING CO. IN PHILADELPHIA.

truck. This can be explained in the following manner:

When a farmer customer of the crusher comes after a load of crushed rock, both he and his team are away from his business for a whole day. The crusher is close to the town and being so near the farmer will drop in at the store to buy a few trinkets or supplies, he is sure to meet a neighbor or friend and they will spend some time chatting, buying cigars, or a treat at the saloon. So he will spend a dollar or two before he drives over to the crusher to get his load. He knows the work that his team has to do in the field tomorrow and he has observed the condition of the road on his way to town. He will only load about as much as he thinks his team ought to draw and no more, for if he loads on too much he will have to stop at the foot of the big hill and shovel off some of it. He don't want to take this trouble, but prefers to take a short load in the first place. Having spent an entire day, the farmer arrives home with less than a ton of rock which has cost him a dollar, and besides he has spent at least one dollar more in actual money. If he really needs six tons of rock, it looks like a week's work for a man and a team, and an outlay of from \$10 to \$12 in cash.

Naturally when he finds that he can buy five full tons of rock delivered on his premises for a five dollar bill without losing a week's time or the double expense, he sees the advantage to him, the purchaser, and promptly falls for it. It is the kind of service that builds business. The profitable kind of business that has looked impossible heretofore.

There is no doubt that very many crushing operations can easily apply the same kind of opportunities now going to waste right under the spouts of their bins every day.

The original second-hand truck and trailer has since been reinforced by two modern five-ton trucks with three-ton trailers, and while not operating full this season that crusher has made some money, and it came out of the new mechanical development of the delivery system, owned, operated and controlled by the crushing concern.

Now, it happens that in this same neighborhood there are two towns not located on the particular railroad that serves the crushing plants, but are situated on other railroads seven and nine miles respectively from the plant. To reach those towns by railroad shipment, cars have to move into the big city terminal and out again on another yard, making the total freight rate with the switching charge just 65 cents per ton. The new motor trucks with trailers can make this delivery for 30 cents at a profit, which gets the business, and the crusher is making deliveries for street improvements in both of these towns that could never be reached before. The new business being picked by the truck drivers along the route at six and seven miles from the plant amounts to almost as much as the street improvement orders.

This indicates that the crusher could actually put out a salesman within a radius of ten miles, the same as any other commercial house does, and so develop the mechanical delivery feature at better prices for the crusher, entirely independent of the railroad with its mysterious rulings, ratings and unfair adjustments, dishonest intentions, impossible service and unspeakable accommodations.

When we first got acquainted with the automobile, it was considered to be no more than a toy. The big tractor engine, which has been hauling threshing machinery over the country roads for so many years was never suspected of having any commercial possibility. Nevertheless, mechanical deliveries that have been introduced, developed and brought to perfection in the last year or so, have revolutionized the opportunities for making a bigger and greater commercial feature for the crusher operator. It is the one thing that has been needed more than anything else, and without a doubt will



NEW ENGLAND CRUSHED STONE CO., ROXBURY, MASS., WHITE FIVE-TON TRUCK.

have a pronounced bearing upon the future of the business, beyond any estimates that could possibly be made at this time.

We have often referred to the hauling problem in connection with road construction, because this feature has been for years the most troublesome factor with which the road contractor has had to struggle. The shortage of good teams has steadily grown worse for ten years or more, but since the foreign cavalry and artillery buyers got into the American market there is no such thing as a surplus team to be found. The farmers have been glad to sell every surplus workhorse that they had on the place because of the high price of feed. They would rather sell their hay, oats and corn at the high prices which have prevailed than feed it to horses which are of doubtful use and service to them, besides the horses have brought good prices and the typical jolly farmer has been cashing in to beat the band all along the line.

As far as road work is concerned, there is nothing but mechanical systems of delivery worthy of consideration in these times of progress and economic development in which the value of the tax dollar is held in high respect. The road commissioners have had so much good educational matter put up to them during the past few years, along with the better information of the general public, that they have learned what a good road really is, and they expect results before they sign vouchers for road work. Their constituents in a greater percentage than ever before are qualified critics of road improvements.

There was a time when road contractors could keep a stretch of road closed for several months or even a whole summer season, but this is no longer the case. Modern road improvements must go in with such speed as to keep only a short stretch closed and that for a very brief time. The material has got to be kept coming in a constant stream, so that the speed demanded by modern conditions and requirements can be maintained.

We have published comparisons and cited incidents of the performances of various types of mechanical delivery equipments, showing comparisons of the best experience deduced from the study of the records of team deliveries. All of these

show that the cost per ton mile of mechanical delivery is always less than half that of the old method. Sometimes, where the conditions are favorable and the equipment exactly meets the requirements, the cost of deliveries is reduced as much as 80 per cent, especially where the quantity of material to be delivered runs up into big figures, and where the distance of haul amounts to several miles.

One point about the employment of a mechanical hauling outfit is that of provision for loading the rolling units promptly and efficiently. This has to be provided so as not to consume the time of the equipment at the loading end and so cut down the efficiency. For instance, there is no economy in attempting to load a train of trailers from a train of railroad cars by the process of shoveling, or by shoveling from the floor of planks laid upon the ground. Such an outfit calls for a mechanical unloader from the railroad cars, provided with chutes to reload the trailers promptly by gravity. It is often cheaper to haul a train of trailers from the crushing plant to the job over a good road for 6 or 7 miles than it is to use the railroad cars at all. Fourteen-ton motor truck trains can run ten miles over a good road in less time than ten men can shovel the fourteen-ton load from the ground, and at much less cost.

The crusher operator who is sitting in his office alongside of the railroad track waiting for the daily budget of orders to come by mail from the city sales office, where insane competition has usually got the price cut deeper than cost, is letting the grass grow under his feet if he does not awaken to the possibilities of better business, hungry for development within easy reach of the plant.

D. P. Pierce, executive assistant of the Barber Asphalt Paving Co., at Philadelphia, recently observed:

"The further that road building gets away from the big cities—and it is getting further away every day—the greater the necessity for motor truck transportation of stone and other material. In the case of the building of mixed-method asphalt roads it is necessary that motor trucks be used to get the material from the plant to the road before it loses heat.

"In paving, the motor truck is being used to an ever-increasing extent. Our own experience shows that it is far more economical than horse trucking, not only with respect to the mere matter of haulage, but it enables us to handle a greater production from the plant and to increase the volume of work done by the paving gangs on the street."

Louis Martine, road contractor, La Porte, Ind., is bringing to completion \$90,000 worth of macadam road work in La Porte county. He has two outfits identical with the one shown in our illustration and employs an automatic loader to rehandle the crushed rock from the railroad cars so as to economize the time of his mechanical hauling units. His records show that he takes the material from the freight car, hauls it one mile, dumps, spreads and rolls the road at a total cost of 13½ cents a square yard. Mr. Martine employs his motor trucks also to pull the graders and other road machinery. He estimates that his two outfits of motor truck and two trailers each, have displaced the use of seventy-two horses and thirty-six drivers, less the cost of the operation of the automatic unloader which takes five men and the two truck drivers, giving a net saving of twenty-nine men on the job. No part of the road has ever been closed during its construction.

Amongst the first producers of crushed rock, lime, etc., to install a mechanical delivery system as a substitute for horses and wagons was the Sheboygan Lime Works, at Sheboygan, Wis. More than three years ago, Theodore Fleischer, the head of this concern, who had long been an expert motorist, decided to apply his knowledge of such things to the advantage of his business. He secured a four-ton KisselKar to make the retail deliveries from his plant near Sheboygan and, from the first day, it has proved a wonderful success. The service has been increased, and no thought of making a change has ever entered into their calculations.

The McDonald Contracting concern at Duluth, Minn., have been successfully using a six-ton KisselKar for the transportation of crushed rock, both for city and suburban deliveries. Provided with the automatic dumping device and automatic tailgate spreader, the Kissel road duty truck has made some wonderful records of economy and consequently very profitable results to their owners and operators.

The same comparison carries through in every instance in which mechanical transportation systems have been installed with proper provision to avoid delay at the loading end. Transportation is no longer the unsolvable problem. There is a great big profitable solution, and it is to be found in the mechanical equipment of delivery.

NEW YORK STONE DEMAND HEAVY.

New York, Oct. 19.—Crushed stone distributors here are not making quotations covering longer than thirty days, according to the most reliable information obtainable on the market. This is because there is developing an undercurrent of heavy demand for late fall and winter requirements. Predictions of dollar trap rock before spring are freely made by some interests. Heavy building movements in New England are attracting rock that formerly came to this market in heavy quantities.

Manufacturers are operating their plants to capacity and would like to make extensive improvements to increase capacity, but are undecided about doing so until they can ascertain whether the present activity is just a reëchoing of the war flurry or whether it is to be followed by a nation-wide building boom. If demand increases as it has in the last two months prices may be expected to move higher.

The Bourse offers splendid opportunities for the wide-awake man. Are you following it carefully?

Kansas City Crushers Busy.

Kansas City, Mo., Oct. 19.—The situation among the rock crushers in Kansas City is the best for many months. During June, July and August the rule was work one day, down two—only forty-eight days out of the three months could the rock crushers run. The result was that stocks were severely depleted and there would have been a sharp scarcity had there been any very heavy demand. During the past three weeks, however, there has been only one break in the operation of the rock crushers, and the companies have been able to keep up with an increased demand and stock up somewhat for orders already on the books. There is a large amount of paving being done in the district now, and considerable building as well.

The Kansas City crushers ship over a good sized district, as far as Leavenworth, towards Atchison competition and to many lively towns in the territory. The largest job now under way is the new Ford plant, using twenty thousand yards; the Ridenour-Baker Co. is using ten thousand yards, and the American Canning Co. job in North Kansas City is using about eight thousand yards. These contracts are being filled by the Prince Co.

One of the big jobs that will take rock this fall is St. Joseph's hospital, a building to cost nearly a half million dollars. The George A. Fuller Construction Co. has the contract and will do the concrete work itself. While no announcement can be made of the source of the rock, it is said that McTiernan & Halpin, with a crusher at Twenty-fifth street and Grand avenue, the closest crusher to the job, are quite likely to get at least a good share of that business.

HUGE PEMBERTON (PA.) BLAST.

According to their semi-annual custom, the American Lime & Stone Co., operating the big quarries at Pemberton, seven miles east of Tyrone, Pa., recently set off another of their enormous blasts, designed to loosen enough rock to keep the quarries in operation for the ensuing six months.

The company began preparations for the blast

several months ago, 17 holes, each 150 feet deep, being drilled and 21,000 pounds of dynamite and powder being used. The blast loosened 135,000 tons of rock. For 15 minutes, while the blast was set off, all traffic near there on the Pennsylvania railroad was stopped and warnings were sent to people for miles around so that no one might come within the danger zone.

The work was in charge of Stanley Plachecki of Tyrone, while the actual superintending of the work of setting off the blast was done by a representative of the Trojan Powder Co. All the rock loosened fell within the quarry and the only accident was to one foreign laborer, who was very slightly hurt by a flying chip of rock. W. H. Agnew, a photographer of Tyrone, secured excellent pictures of the blast.

PITTSBURGH QUARRIES BUSY.

Pittsburgh, Pa., Oct. 19.—The stone business in this district is getting unusually good, as it always does when the steel business revives sharply. The industrial concerns throughout Tri-State territory are building many new plants which require concrete foundations as well as extensive additions to old plants. These operations are requiring considerable stone. The railroads are taking much more stone for ballast and track work, as well as for bridge building. State road operations are also coming forward to the contract stage, although comparatively little will be done along this line before the first of the year. Contractors, however, the past month have been buying more stone for road purposes, chiefly for the reason that they did not have enough to complete their summer jobs and have been replenishing their supplies. Quarries in the Pittsburgh district are taking advantage of the fine weather and are running full in most cases. Some of them have sufficient business to warrant continuing operations until Jan. 1.

When you want to buy or sell machinery or supplies don't overlook the possibilities of The Bourse.



WHITE MOTOR TRUCK AND TROY TRAILERS OWNED BY LOUIS MARTINE, LAPORTE, IND.

News of the Quarries.

The welfare board of Kansas City has leased a rock quarry at Fifty-first street and Swope parkway, where work will be provided for idle men this winter. It has been hoped that the bonds would be sold, and work provided under the plans for improvements, for all men seeking it, this winter. L. A. Halbert, secretary of the welfare board, said recently that his department had demonstrated at the municipal farm that building operations could be carried on nearly throughout the year at Kansas City; and if the bonds had been voted, there would be no idle men. As it is, the board is preparing for a considerable number—preparing hard work, and not luxuries.

The Kentucky Lithographic Stone Co., at Brandenburg, Ky., is installing machinery to manufacture lime fertilizer for the farmers in the immediate vicinity of the city. The company specializes on mining lithographic stone.

W. S. Holmes, of the Chickamauga Quarry & Construction Company, stated that work would commence at once on the Sequatchie county road out of Chattanooga, Tenn. The contract was awarded to the company on a bid of \$50,000.

The stone-crushing plant of the Hartley-Zeigler Co., York, Pa., was recently the scene of a most disastrous conflagration which burned fiercely for several hours and caused a damage of several thousands of dollars. The exact origin of the blaze has not been determined. The loss was covered by insurance.

On account of large orders for limestone, the J. B. Millard Co., which operates extensive quarries in the vicinity of Annville, Pa., has announced a voluntary increase in wages of five per cent, effective at once. Forty additional men will also be employed in order to facilitate the turning out of orders on hand.

A property located in Douglass township, Pa., and which consists of 114 acres and 94 perches, containing the famous Rattlesnake Hill stone quarry, was recently sold at sheriff's sale to O. L. Evans, as the property of Clarence F. Adams, for a purchasing price of \$56,130. The quarry was formerly the property of S. H. Mensch, who operated it for about six years. Several years ago Mr. Mensch sold the place to Mr. Adams for \$97,000. The sheriff's sale was conducted at the instance of Mr. Mensch against Mr. Adams for \$52,500. The entire workings of the quarry are included in the sale, such as machinery, shafting, engine room, dwelling house, barn and crushing machinery.

Lightman Stone Co., Nashville, Tenn.; capital, \$40,000; to engage in the quarrying of limestone and other stone and to buy, sell and manufacture screenings, etc.; incorporators, M. A. Lightman, Louis Shapinsky, Jennie Shapinsky and Fannie Lightman.

SCREENS OF MERIT.

The Waukesha Lime & Stone Co., Waukesha, Wis., in a recent communication to the Johnson & Chapman Co., Chicago, manufacturers of perforated metals, outlined how it is answering one of the problems through the use of three No. "O" O'Loughlin screens.

One of these screens is now in use in the company's crushed limestone plant, which has a capacity of 100 tons per hour, and this one screen is making the complete separation of the finished product. The sizes of perforations used in the screen are as follows: Three-eighths-inch, seven-eighths-inch, one and five-eighths-inch, two and five-eighths-inch; that material passing over the two and five-eighths-inch is rejected to the fine crushers for recrusling. This gives five sizes of product, including the rejection. The material at that plant is screened dry.

The other two screens are in operation in the sand

and gravel plant, which has a capacity of 350 tons per hour, and including the rejections, they are each producing five separate sizes; the perforations in the screens are one-fourth-inch, three-fourths-inch, one and three-eighths-inch, one and seven-eighths-inch, with all material passing over the one and seven-eighths-inch rejected to fine crushers for further reduction. Water is used for washing and screening the material at this plant, and the pump discharges approximately 1,500 gallons per minute in the mixing operation before entering the screen and as a spray on the material as it passes through the screen. The company states that it has the reputation among the trade in that vicinity of furnishing the most uniform graded material on the market.

Latin America Consular Regulations.

American exporters who have attempted to ship their goods to Latin American markets without the assistance of a commission house or customs broker fully appreciate the difficulties involved in preparing the shipping documents. The customs regulations of Latin American countries are very detailed as to the information to be included in such documents, and a fine is provided for every possible deviation from the prescribed rules. The Bureau of Foreign and Domestic Commerce has been informed of numerous instances where fines were imposed for such slight irregularities as the failure to state the nationality of the vessel in the invoice, the use of ditto marks, or the failure to use the exact idiom in designating the goods included in the shipment. It is not surprising then that some American exporters who have had the unpleasant experience of refunding fines to their consignees occasionally become discouraged and conclude that it is practically impossible to do business in Latin America without the intervention of a commission house.

On the other hand, the commission houses and some of the more experienced customs brokers assert that they have had very little trouble in making shipments to Latin American countries, and, while conceding that the customs regulations are somewhat complicated, claim that fines and delays can be avoided if proper care is taken to comply with such regulations. However that may be, there is no doubt that even an experienced shipper is likely to become confused sometimes and mark his box with a brush when the regulations of the country of destination insist on the use of a stencil; or, in his anxiety to protect his interests, he may attempt to make a "to order" shipment to a country that either does not recognize or prohibits such shipments.

From the numerous complaints that have reached the Bureau of Foreign and Domestic Commerce, of the Department of Commerce, it was concluded that American exporters needed a sort of guide book to help them in preparing shipping documents for Latin American countries, and a publication, entitled "Consular Regulations of Foreign Countries (Canada and Latin America)," Tariff Series No. 24, has just been issued by that Bureau and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents a copy. The 66-page pamphlet contains a complete description of the shipping documents required in all Latin American countries and Canada, gives facsimiles of consular invoices used in such countries, and points out such peculiar features as may be overlooked by the average exporter. The material has been compiled with great care, the chapter for each country having been submitted for revision to the consular representative of the respective country in the United States. Some American banking institutions and commission houses have also been consulted, and it is believed that by using this publication the average exporter will be able to prepare his shipping docu-

ments in correct form and save his customer in Latin America from fines and delays in the delivery of his shipment.

PULVERIZER EXCEEDS CAPACITY RATING.

The K-B Pulverizer Co. reports that it is selling a large number of its machines for producing agricultural limestone. Among the recent installations that are doing exceptionally good work is the No. 2 machine sold to the Thomasville Stone & Lime Co. This machine is giving a capacity 25 per cent in excess of its rating, reducing over 10 tons of limestone per hour to a fineness of practically 100 per cent through 20 mesh. After the K-B Pulverizer Co. makes a few minor changes, it expects to increase the capacity of this machine to between 12 and 15 tons per hour. It is worthy of note that when the machine was examined after having pulverized several thousand tons of stone, it showed no sign of wear. The "K-B" pulverizer reduces stone from three inches or under, down to dust in one operation, which makes its use unquestionably among the simplest and most economical methods of making this reduction.

MOTOR TRUCK DEMAND GOOD.

"The motor truck trade is in a very thriving condition," says H. P. Branstetter, of the Kissel-Kar, "and I look for a constantly increasing demand. Not only has road building and other large contract work figured in this boom, but the call from small manufacturers and tradesmen is extremely lively. The Kissel factory is already receiving many orders from merchants who are not going to let another holiday season come without being prepared to handle deliveries as only trucks can handle them.

REPORTS STONE BUSINESS GOOD.

J. M. McGuire & Co., Pittsburgh, Pa., have had a very successful season in the selling of stone for road and railroad uses. At present they are getting a fine lot of inquiries, which promises exceptionally good business for the late fall and early winter, providing the stone can be secured.

AWAIT SLAG RATE HEARING.

The Slag Freight Rate Case, in which sand companies of the Pittsburgh district are considerably interested, and one of the most important to be brought before the Public Service Commission in many weeks, will be resumed in Pittsburgh Nov. 9, when the commission is to meet there for its Western Pennsylvania hearings. The slag case grows out of the charges of the railroads for hauling slag and cinder from furnaces and steel works. For years it was hauled free and used for filling, but federal rulings were that it had to be charged for. It is now contended that on hauls wholly within the state the railroads should haul it free.

COMMISSION RULES AGAINST CARRIER.

The Public Service Commission has refused the Pittsburgh and Lake Erie Railroad Co. its application for a modification of a previous order made by the commission. By this order the railroad company was directed to buy one-fourth of a joint rate in the Pennsylvania Railroad Co. on hauling crude limestone to Monessen, Pa., and nearby points. The original complaint on the rate was made by the Pittsburgh Steel Co., which protested against canceling the old rate of 75 cents a ton.

The Elkhorn Lime Co., Madoc, Ontario; capital, \$250,000; provisional directors, C. W. Sharp, contractor; S. Wellington, W. P. and C. G. Gillespie and James Skelton, all of Toronto.

CEMENT

Plans of a Bigger Promotion Campaign.

The Association of American Portland Cement Manufacturers at the meeting in Atlantic City, which by the way was one of the best constructive meetings ever held by the organization, discussed two plans of action which should add to the progress of the industry. While these matters will be further discussed at the annual meeting in New York in December, and may be made effective and operative at the first of the year. The fact that J. P. Beck, of the Hagar Portland Cement Co., has been engaged to devote his attention to the promotion work of the organization constitutes assurance that the new plan of organization will be a success. Mr. Beck has had a lot of experience in publicity work, having been for years head of that department with the Universal Portland Cement Co., and also general manager of the Cement Products Exposition Co. since its existence. He has been a great factor in the phenomenal success of the latter institution.

We are sure the proposed plans of the cement association with an organization improved by the employment of several high-grade men of the character of Beck, the campaign for greater, more intelligent production and sale of cement will add to the prestige of the association and excellent work in the industry. The present officers of the association are John B. Lober, president, Percy Wilson, secretary.

The whole material trade can look forward to a 1916 campaign which will be somewhat startling, but so advanced in progressive construction that it will be an impetus for the whole trade to work more closely together for prosperity.

NEW YORK CEMENT MARKET.

New York, Oct. 16.—The best price that Portland cement manufacturers are able to get in this market today is \$1.52 a barrel for Lehigh valley cement. There is still some being sold at \$1.48, but it is not new business. Agents are slow to cover customers for 60 days even at \$1.57, and it is quite common to hear of offers of \$1.62 being thoroughly pondered on deliveries running into the first quarter of 1916. There are cautious predictions being made that dollar cement at Lehigh mills is not quite as far off as some think. Shipments are being made from Zone No. 1 at the rate of at least 30,000 barrels a day on cement contracted for by New York dealers when the price was around \$1.42, so that there is not a great deal of reserve cement on hand in the bins as winter and shutting-down time approaches for needed repairs.

There is still considerable talk of foreign inquiries for American Portland cement for spring fortifications in Europe, which is sufficient to keep manufacturers interested, though actual orders are said to be exceedingly rare. Canadian mills, however, are reported to be making shipments to England.

LEHIGH VALLEY SHIPMENTS.

Reports covering the movement of Portland cement from the Lehigh Valley district during September show that shipments compare very favorably with those for August with a slightly increased

reserve. If this report is later substantiated by full returns from all the mills it will mean a still closer adherence to the 90-cent mill level and possibly a five-cent advance. Asked about a possible price war this winter, a prominent official said: Any dealer who is holding off his fall purchases with the idea of benefiting from price cutting possibilities is sadly misguided. Nobody can stand another session of price slashing.

BUILDING ACTIVITY OFFSETS RAINY SEASON.

In filing his report for the month of September, Guy W. Mallon, receiver for the Superior Portland



J. P. BECK, GIFTED PROMOTION SPECIALIST.

Cement Co., stated that the season of 1915 has been the most unsatisfactory ever experienced in the cement trade, on account of the remarkably wet and rainy weather, which resulted in discouraging building and therefore in reducing the demand for cement. In spite of these unfavorable conditions, however, the activity in building in Cincinnati helped the company materially and gave it a comparatively good year. Net profits on the company's books on Oct. 1 were \$51,010.90 as against \$45,920.66.

BUT IT WAS A BIG ENTERPRISE THEN.

The Los Angeles Express publishes an interesting column entitled "Twenty-five Years Ago Today." In a recent issue appeared the following item suggestive of the growth of the Portland cement industry:

"The new Portland cement plant on land acquired by the syndicate near El Toro is expected to produce 13,000 barrels of cement a year."

The Santa Cruz Portland Cement Co., San Francisco, Cal., has declared a dividend of \$1.15 per share in addition to the regular quarterly dividend of 75 cents per share.

Montana Plant Planned.

The recent development of a large natural gas field near Harve, Mont., has created an interest in the development of the cement properties at that point.

It is reported that Orville U. Miracle, president of the Two-Miracle Concrete Co., of Montana, and Dan R. Brown, of Spokane, Wash., formerly district manager of the Lehigh Portland Cement Co., have secured the Deolin properties, and in connection with Montana and Eastern interests are planning the immediate construction of a plant.

The raw materials consist of good calcium carbonate limestone, shale and a silicious cement rock. The examination of the materials by the United States government geologists and engineers and the recent complete reports of cement chemists and engineers concur in the opinion that a high-grade Portland cement can be produced from a combination of the two limestones. That condition is practically certain, although should a shale be required it is available on the property and adjacent to the deposits of limestone.

The properties consist of 345 acres, containing the two grades of limestone, shale and a vein of coal of the sub-bituminous grade, suitable for rotary kiln, and a 10-acre millsite adjacent to water. The coal fields around the Harve district could deliver coal to a mill at less than two dollars per net ton.

The distributing field for the mill at Harve would extend into a well-settled part of the great Northwest.

KOSMOS COMPANY AMONG CELEBRITIES.

Under the heading "Things You Should Know About Louisville Industries," the Louisville Herald recently printed the following article concerning the Kosmos Portland Cement Co.:

"The only plant in Kentucky manufacturing Portland cement is the Kosmos-Portland Cement Co., established in Louisville in 1904, by Samuel Horner, president; Charles Hoerner, vice-president, and A. McCracken, secretary. The quarries and plant of the company cover an area of over 300 acres at Kosmosdale, Ky., where from 200 to 250 men are employed during the busy season. At this plant more than 1,000,000 barrels of cement are prepared yearly. From Kosmosdale a portion of the output of the plant is shipped to Louisville where it is distributed through other concerns. All distribution and quarry work is directed from the offices of the company in the Paul Jones building. The company has a distribution which covers the states of Kentucky, Tennessee, Indiana, Ohio, Illinois, Mississippi and Arkansas. The plant at Kosmosdale is one of the largest in the state of Kentucky. The annual payroll amounts to between \$100,000 and \$150,000.

BEAVER PLANT AGAIN IN OPERATION.

The Beaver Portland Cement Co., of Portland, are making preparations to open their cement plant at Gold Hill, Ore. The plant will have a capacity of 1,000 barrels of cement daily in addition to the agricultural lime which it is now producing. Fletcher Linn, of Portland, formerly manager of the Oregon Manufacturing Co., is active manager of the concern.

Sad Death of Gold Williams.

The cement industry of America will never know a sadder occurrence than the untimely death of Gold Williams, which was the result of an automobile accident on Sunday, Oct. 10, near Aurora, Ill. He was known to be a motor enthusiast, and one of the most expert amateur auto drivers in Chicago. He was driving his own 48 horsepower Locomobile when the accident occurred, in company with a party of friends and customers, who had enjoyed a week-end party at the cement mill near LaSalle, Ill. Without warning the machine left the road and was overturned, rolling down an embankment and pinning all of the occupants beneath the overturned body. Mr. Williams was instantly killed, as was Monroe T. Peterson, the three remaining members of the party, one of whom was B. M. McDonald, also of the cement company, being only slightly injured.

For six years Mr. Williams had been sales manager of the Marquette Cement Manufacturing Co., with offices in the Marquette Building, Chicago. He was a man of marked ability, of engaging manners and attractive personality. He rapidly accumulated a wide circle of friends, every one of whom promptly became an ardent supporter. His strong character and high-minded integrity attracted the admiration of his business associates and gave the magic touch of success to all his undertakings. Those of us who knew him best reposed confidence in his judgment, admired his energetic disposition and appreciated the instincts of a knightly gentleman that always surrounded his presence. Gold Williams was loved and respected for his own great worth by those who came in contact with him whether in business or social engagements.

He was but 34 years of age, and was born at Riverton, Neb., educated at the University of Nebraska. He first secured employment with the Burlington railroad as a brakeman and soon made very rapid advancement. Seven years ago he was transferred from the Lincoln, Neb., office of the Burlington to Chicago to take up the position of chief clerk to the general superintendent of transportation, the great railroad organization having thus promptly recognized his remarkable ability as a traffic expert. In the capacity of traffic manager he first came with the Marquette company, and in 1911 he was elected a director and general sales manager, which position he held up to the time of his death.

Mr. Williams was a member of the Hamilton, Exmore Country, Chicago Traffic, Chicago Automobile and Chicago Motor clubs. He was a member of the Protestant Episcopal church, a Master Mason and a Knight Templar.

Funeral services were held Wednesday, October 13, in Chicago, amidst a profusion of floral tributes with the solemn offices of the Episcopal church and the impressive ceremonial of the Knights Templar. Interment was made in Oakwood cemetery, Chicago, with the full rites and honors of the Masonic Order, in which he was an active and earnest worker. His widow survives.

Honorary pall bearers, consisting of the sales managers of all the cement companies represented in Chicago, made an appropriate and touching personal tribute to the memory of their companion, expressing as it did the sweet sentiments of appreciation and remembrance.

No words are capable of portraying the deep feeling of regret that such a brilliant career, just budding into perfect flower, must be cut down in the first earnest of its great usefulness. Out of the human heart and consciousness there comes no answer to such questions as the mind reaches after—in Deity alone is there refuge.

GERMAN CEMENT OPERATIONS.

No branch of industry in Germany is more affected by the existence of war than that of build-

ing and construction, according to a report from Consul-General Julius G. Lay, of Berlin. The refusal of householders to pay rent naturally affected the proprietors and other persons interested in construction. The Federal Council attempted to alleviate this condition by passing regulations assisting renters, who naturally were among the first to be affected by the war.

Conditions in the cement industry are unfavorable. The cement syndicate has tried to keep open a certain number of its factories. Increases in the cost of production have caused the selling prices of cement to be advanced from time to time.

CEMENT INDUSTRY OF SWEDEN.

In a recent government report, Consul General Ernest L. Harris, writing from Stockholm, Sweden, says that the manufacture of cement in Sweden is, comparatively speaking, a new industry. In 1860 the imports into the country amounted to practically nothing. Later, however, the need of cement became apparent, and a number of factories were



GOLD WILLIAMS.
1880-1915.

started which have been made successful owing to the fact that there are large deposits of raw material at hand. In addition to supplying the home market, nearly \$1,000,000 worth of cement finds its way to foreign countries. The greater amounts go to Russia, the South Sea Islands, and Argentina, while smaller quantities go to Denmark, Germany, and Asia Minor. The total exportation amounted in 1914 to \$918,491, compared with \$973,869 for 1913.

ECUADOR CEMENT IMPORTS.

Owing to a recent ordinance passed by the Guayaquil, Ecuador, municipality providing that buildings to be erected or repaired must have the ground story and foundations constructed of concrete, to the use of cement in new railway-bridge abutments and culverts, to the extensive Guayaquil sanitation works, and other reasons, cement will be used in the future much more than in the past, says Consul General Frederic W. Goding, who is stationed at that city. The imports of cement in pounds, its value and the countries of origin during the last two years were:

Country—	—1913—		—1914—	
	Pounds.	Value.	Pounds.	Value.
Belgium	38,978	\$ 582	61,729	\$ 213
Germany	2,816,169	11,879	3,522,074	14,388
Italy	24,471	308
United Kingdom	41,731	246
United States	2,271,599	12,547	2,592,051	12,060
Other countries	17,431	71
Total	5,168,648	\$25,387	6,217,585	\$26,907

Activities of Cement Products Plants.

The big cement block plant at Eldred, Pa., is putting in a switch for the P., S. & N. Railroad to its factory and is also building a system dry kiln, 44 by 80 feet, and two big warehouses. Manager Lyon anticipates a steady run this fall.

J. E. Zahn, secretary of the United States Portland Cement Co., states that conditions in the section of the country to which this company ships has shown an improvement until lately. At the present time business seems to be showing a slight falling off for some unaccountable reason, except it be the fact that the farmers have not been able to thresh their wheat until quite recently. The farmers are now busy hauling their wheat and sugar beets to market, and this may, of course, have some bearing on the situation. Cement prices in the Denver District have advanced, the action following the rise of cement in the east.

The Three Forks Portland Cement Co., of Denver, reports a United States government contract for 17,000 barrels of cement to be used in irrigation work in Montana.

The Edison Portland Cement Co., of New Village, N. J., has been granted a reduction of \$50,000 in its tax assessment by the Warren county board of taxation. The plant has been assessed at \$450,000, but the company asked that for this year only the assessment be reduced to \$400,000. The claim was made that inasmuch as the plant had been idle for almost a year the reduction would be a just one.

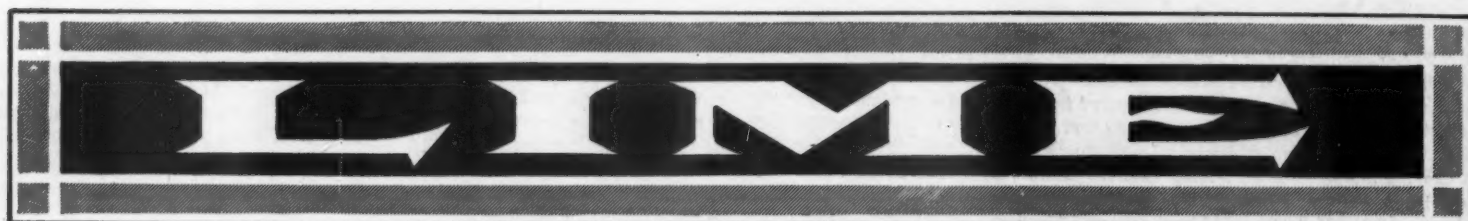
A reversal of judgment against the National Bank of Commerce was handed down in Denver, Colo., Sept. 29 by the United States Circuit Court of Appeals, which relieved the institution of payment of \$100,000 to the Equitable Trust Company of New York. The case grew out of the St. Louis bank's connection with the financing of the Iola Portland Cement Co. several years ago. In the deal the New York and St. Louis financial institutions supplied \$2,758,250 to George E. Nicholson, of Iola, Kan., with which to buy the controlling interest in the cement plant. Nicholson gave his note and the stock as collateral for the loan. The Equitable took \$250,000 of the loan, and common stock for security. Shortly afterward the New York bank traded to the St. Louis bank the common stock for preferred stock, and this transaction was followed by a 50 per cent dividend on the common stock, which was paid to the National Bank of Commerce. The Equitable Trust Co. sued for \$172,000 and a share of the 50 per cent dividend. It was awarded judgment in the district court. The Denver court cut the judgment to \$72,000, which represents the unpaid balance on Nicholson's note held by the Equitable.

YEAR FOR STEALING CEMENT SACKS.

Louisville, Ky., Oct. 19.—A jury in the Criminal Court, of Louisville, recently handed John Phillips, a negro, such a heavy sentence for the theft of 50 second-hand cement sacks, valued at \$5, that it is thought that sack stealing may be abated somewhat in this district. The negro was sent to the penitentiary for one year.

While the value of the sacks only constituted petit larceny, the theft was made while the sacks were in the possession of a common carrier, the statute relative to the theft of goods in transit, making it a felony, no matter how low the value may be. Phillips was captured shortly after the theft, and the sacks returned to the consignee. On recommendation of the Commonwealth, the jury fixed the lowest penalty. For a number of months the grain dealers, cement men, contractors, produce men, and other shippers have been continually troubled by sack stealing.

The Bourse is the hearthstone of the building material industry. Are you taking advantage of it?



The Paper Bag vs. Cotton and Burlap*

By F. E. KESSINGER.

The real reason why I am here is not to start a discussion on paper bags, vs. burlap and jute, although I appear to have that topic assigned to me on the program, but primarily to tell you something of what has recently occurred in the proceedings that the railroad classification committees have had with respect to shipment of lime in paper bags.

Before I start on that phase of the matter, however, I would like to say that, although I am an attorney, I have had a long practical experience in package matters, incidental to my work as attorney for the rope paper bag manufacturers. It goes back over a period of 10 years, and therefore what I may have to say to you today, on the subject of bags, is not based on what somebody has told me, but is what I have learned from actual digging away at this subject, and I think it is but fair that I should mention this, because I know the disposition of business men to look upon the talk of a lawyer as being perhaps not practical or quite suited to their purposes. When I speak to you on the general subject of paper sacks, I would like to have you understand that it is not as a lawyer, although on the other subject of the railroad proceedings, I naturally will revert back to my accustomed sphere.

Last August (1914) the Railroad Classification Committee, known as the Official Committee, whose roads cover the territory in the Eastern states, and which is the principal classification committee in the United States, got down to consideration of the shipment of lime and plaster in paper sacks, that movement came about, not so much on account of any specially acute complaints or troubles on hand at that particular moment, but more from the following situation:

Five or six years ago, under the sanction of the Interstate Commerce Commission, there was constituted a classification committee which is known as the Uniform Classification Committee. The ultimate purpose of that Committee is to consolidate within its jurisdiction the classification of the entire United States, which, at the present time, is divided into three districts known as the Official or Eastern Classification, the Western Classification, and the Southern Classification. The Official Classification is the predominant one of the three. Ultimately, and from what I have been able to learn, it will take several years more before the classification of the whole United States will come under one uniform jurisdiction known as the Uniform Classification Committee. This committee has been working for five or six years, and since their task is a large one, it may take five or six years more before the entire uniform classification is sufficiently satisfactory to adopt. Once the uniform classification has been adopted, it will come before the Interstate Commerce Commission, and upon approval will become a more or less permanent thing, not to be interfered with except under unusual circumstances. The ultimate object is to secure a uniform classification of all kinds of articles and shipments upon terms that will be fair and protect both the railroads and the shippers.

I want you to understand how this matter came about, because it has some important bearings. I

heard of it through some clients who are rope paper sack manufacturers. They in turn, heard of it through some of you gentlemen. I have had the pleasure of meeting a few of you gentlemen before, and have had very material assistance in the matter from some of you, but this is the first time I have had an opportunity to communicate to you, as a body, the situation as it was, the dangers involved, how it has developed up to the present time, and what is likely to occur in the future. It is quite important that you should understand what the railroads purpose to do in regard to the entire subject of classification, not only of lime, but every other kind of commodity that they handle. They purpose to go right through the list from A to Z and they are taking advantage of their experience in order to eliminate the undersirable and unsafe features from their standpoint, in the package proposition, no matter what the commodity may be, so that when they took up your shipments of lime in paper, it was not because they were specially after lime in paper, but because that happened to be the subject they were directing attention to on that particular day. The time will come when they will revise your shipments in other kinds of packages, that is, if they need revision in their judgment; and from what I have learned about the matter, I think they do. That is the way the matter came up. I found before I had gotten into the matter very far that the committee had had considerable correspondence with some of the plaster manufacturers and with a few of the lime people, and in this correspondence it had developed that some of the plaster people did not think it was particularly important to preserve the right to ship plaster L.C.L. in paper sacks. Those consulted, examined their individual records of shipments from plants, and found that the great bulk of such shipments went in carloads, and evidently they did not think very deeply on the subject, at any rate, not sufficiently to figure out, as was the fact, that the great bulk of those carload shipments, shipments that left the plant in the shape of carloads, soon got into the hands of dealers, who reshipped them L.C.L., so that indirectly the position in which they were putting the matter before the Classification Committee would have eliminated a large part of their shipments of plaster in paper, by causing the elimination of L.C.L. provisions, and thus indirectly eliminating such carload business as was reshipped L.C.L. I found when I appeared for the first time before the Committee on Sept. 22 (1914), that they had held a caucus in Chicago the week before, at which two of the leading plaster manufacturers had been present, and after going over the matter with them, had virtually concluded to eliminate paper in less than carload shipments, both for lime and plaster, including lime as well, because they reasoned that whatever was true of plaster was probably true of lime; and that was the situation that things were in, and in order that you may understand the railroads' attitude towards a subject of this kind, I want to say that all paper bags look alike to railroad men until they learn differently and it is quite a job to teach them. They never have had in their classification, any limitation of the kinds of paper bags that could be used, neither have they had any limitation of the kinds of cloth

bags that could be used, and consequently, when one mentioned paper bags, it apparently meant anything from the thin, flimsy grocery bag up to the finest, toughest, rope paper sack that could be made, accordingly, as the railroad imagination worked on the subject. That is one of the reasons they had it in for paper containers in general. As I got into the subject further, I found that they were, to a considerable extent, justified. It was not so much that they were justified in the lime business, because most of the lime bags that have been sold were of a good standard, but there has been much of pirating in the bag business by the sale and use of unsuitable containers, and the consumers or the manufacturers of products shipped in paper containers have contributed very largely to that pirating by encouraging it. Consequently, you lime manufacturers were suffering for the sins not only of yourselves, but of some other manufacturers of different commodities. You perhaps, were guilty, to a certain extent, of participation in such sins, but such sinning was not as flagrant in the lime business as it was in some other lines.

But the fact was to sum up the situation in a word, that paper containers, as a general proposition, owing to the poor and unsuitable quality of some bags used, were in bad repute with the railroads, and in consequence were slated for the toboggan. A recommendation, had, as a matter of fact, come from the Uniform Committee in Chicago to the Official Committee in New York to eliminate the use of paper in all L.C.L. shipments, and it was but a coincidence that lime and plaster in paper were the first to be considered. At the meeting on Sept. 22, I commenced to talk about the advantages of paper sacks, but was interrupted almost at the beginning and told that there was little use of taking up time on the subject, because at the caucus in Chicago, it had been decided to eliminate paper in L.C.L. and continue it in C. L. shipments. I told the committee that the gentlemen who had informed them on this subject had evidently not made a thorough study of the matter, and did not understand its various bearings, or if they understood them as to their own particular companies, their view was not true as to the bulk of the manufacturers engaged in these industries.

Railroads Acting in Good Faith.

There fortunately was with me that day, a representative of one of the larger lime companies who was well equipped with facts and figures which I was permitted to use, and which showed the committee conclusively that a large part of carload shipments from the plant very soon went out again in less than carload traffic. Now, I desire to say about the railroad people, that they were acting in the best of good faith, and trying to be absolutely fair. They had no desire to work any hardship on you or anyone else, and when they realized the true situation, they decided to hold the matter in abeyance, and not to eliminate good paper containers. On the contrary, they left it to the chairman to take up further with me and see what could be done toward protecting them against the use of containers that are unsuitable for the purpose.

Following that meeting, I had several conferences with the chairman of the Classification Committee, and he gave me his ideas very fully and asked me if I would help in working out a proper standard of specifications which would insure the railroad companies getting good paper containers, so we started on this line. The result of it is that the

* Address at last meeting of National Lime Manufacturers' Association.

committee has worked out such a standard not only for lime, but for plaster, cement and other materials, and that standard has been considered twice since then by the committee and I expect will be on their next docket for final action. In so far as hydrated lime sacks are concerned, it does not increase the standard which is now used and has been used for several years by standard lime paper sack manufacturers, and which constitutes a first-class sack. Although the standard for hydrated lime paper is considerably lower as to the percentage of rope contained in the paper than for the same maximum weight of contents of some other commodities, I think it is right and that the committee will keep that on that basis for this reason; there is back of those specifications a history of years of successful use of that kind of paper sacks of that standard, millions of them used every year, and in the year 1913, out of a very large number of bags—I don't think I ought to state the amount possibly for other reasons, but it is way up in the millions—there were claims for damage on only seven tons of lime, and some of those claims were not for breakage, but were for damages by moisture, leaky cars, a wreck, and some other things. The amount of claims was so small as to be negligible, and was recognized as such. Therefore, although the railroad committeemen naturally squinted at these specifications for a high grade rope paper lime sack, which are lower by 20 per cent as to the amount of rope contained in comparison with the flour sack to contain the same weight, and did not at first, see why there should be that difference, still I think in view of the explanation made and the history and facts supporting this standard it is not likely that they will impose any additional burden on the hydrated lime people, and it is probable that this matter will go right along as it has heretofore gone with you, provided you have been using paper of a suitable standard. In the future, you will not be permitted to use any old bags that you see fit, regardless of their suitability, as you have been permitted to do in the past, a practice that has come near destroying your privilege to use paper, but you can use paper of a suitable quality in both C. L. and L.C.L. shipments.

Trouble Caused by Bad Bags.

At first I was somewhat skeptical as to the quantity of bad bags on the market, but after a month's effort in collecting bags of that description, I was amazed to find what the fishnet brought in. They were something fierce, and it was no wonder that the railroads were after them. Now, that is the cause of the whole trouble. It is not the good, but the poor, unsuitable bags. One of your members, who is here today, can corroborate my statement that his company every year for years, has used millions and millions of these good sacks, made on the specifications that the railroad wants, and that they have about as little trouble as it would be possible to have. I know that if I should inadvertently make any misstatements in this respect, your member would jump up and correct me, but you can depend upon it, I am not. The point I want to bring home to you is this, that when you contribute to the pirate, to the assistance of the pirates, in the bag business (and there are pirates in the bag business—I don't know your business well enough to know whether you suffer from pirates or not, but possibly you do—and they will sell you cheap, unsuitable bags if you will take them) you are contributing to the railroads some day legislating severely against paper. As I said before, all paper containers once were looked upon alike by the railroad men on the Eastern Classification Committee, but I think there has been some change, there must naturally have been, because they have spent a good deal of time studying the subject; in the West and in the South, however, they still all are looked upon alike. The same thing should and probably will eventually be done in the West and in the South that has been done in the East, for until those avenues are opened up, your business

in paper, your shipments of lime in paper in these territories are necessarily restricted. They do permit you to ship in carloads, but you cannot ship L.C.L. in these parts of the country, and until you can ship L.C.L., there is a large percentage of your carload shipments that cannot go in paper because they have to be reshipped L.C.L. by the dealer who gets them.

These specifications which I have been talking about have not yet been adopted, but I anticipate that they will be. What has actually been adopted up to the present time is this: Last August (1914), and for several years past, the classification rule concerning bags was this: It read that when bags were mentioned, cloth bags were meant, unless in the special sub-description of the particular article, some other kind was mentioned. It also said that the cloth bag must be of sufficient strength to carry the contents safely and must be so closely woven or stitched as to prevent sifting. That was the former rule, and under the separate sub-classification of hydrated lime, they permitted shipments in paper in carload lots, but not L.C.L., that is the reason you could not ship L.C.L. under a strict enforcement of the old rule, but that rule had been loosely enforced, and you had been shipping L.C.L. until they got down to consideration of this subject last summer; then they observed that the rule was not being enforced and sent out their instructions to the various inspectors throughout the territory to enforce it; that accounts for the notices you then received, that they would not accept L.C.L. lime in paper, although it had been going through all right before then.

Now, after we had threshed this matter out to a considerable extent and they saw it would take a month or more to get up proper specifications, they decided that they would not, in the meantime, continue their embargo against L.C.L. shipments in paper; consequently, they made what was considered a temporary amendment of their rule and changed it so that now where bags are mentioned it means bags of sufficient strength to carry the contents of the package safely, there being no reference whether they are to be of cloth or paper, just that general rule. It was adopted as a temporary matter and is still such, but I think it is likely to be made permanent, with the addition of specifications as to what the paper bag be used in shipping shall be, and later on it is also likely that they will do the same thing with other kinds of bags, cotton, burlap, jute, etc., so that as this matter progresses, I think you will find that the development of it will eventually produce specifications insuring suitability for every kind of sack or bag, and every kind of a package, barrels if you use them, or anything else that you use in shipping your product. That is what seems to be in store according to the program of the railroads, and it is only just and reasonable. It looks very much as if your paper package would resolve itself into substantially no change from the good standards you have had heretofore, but if any of you have been inclined to buy cheap bags and help the pirates, you probably will be precluded from so doing hereafter unless you can go before the railroads and show them that you ought to be allowed to use a bag that is entirely unsuitable for the purpose, and I have not been able to do that and will say frankly I have not tried to do it—it would have been both foolish and fatal.

Importance of Paper Containers.

If you will bear with me a few moments more, I would like to say a few words to you on the general subject of paper containers and their importance to you, and in doing so I would like to speak to you more as my clients than I would as representing any other industry in connection with your industry. I think I have learned some things about the package question in my experience that may be interesting to you and valuable as well.

The paper container is important to you as a regulator of the cost of cloth containers, more im-

portant a great deal than you perhaps conceive, and if you should take out of the market any year the number of paper containers that you have been using and try to replace them with cloth containers, you probably would find an upset condition in the cloth market. Possibly you would find that you would be unable to do it at all, and if you were able to do it, your extra demand probably would raise the price, not only on these extra bags, but on the whole volume of cloth bags that you might want to use. You may not know it, but practically all the burlap and all the jute that is used in the world comes from the city of Calcutta in India. It all passes through one narrow market in India and is all controlled by the people who trade in those commodities. You are undoubtedly aware that the materials of which your cloth bags are made are highly speculative articles, and that the prices in this country fluctuate tremendously. One year they may be double as much as the year before, sometimes even more than that. It is impossible to tell what is going to happen. I am acquainted with many of the bag manufacturers in the burlap business and the usual experience in that business is to be poor for a year or two and then rich for the next couple of years, and that money comes out of you gentlemen, to the extent that you buy these bags. In other words, you don't know what the future is on that proposition and you cannot guess—it is an absolute impossibility—any more than those good fellows in the cloth bag business can, because if they cannot guess it correctly, you certainly cannot. That is something you may not have thought about, but it is a very important proposition in your package question.

Non-Sifting Packages.

Another aspect of the matter to which you may have given more or less consideration is the proposition of sifting. I do not know whether you are aware of it, but I have been informed that in the state of California last year a bill, fathered by labor unions, was introduced in the legislature and came very near becoming a law, to require the manufacturers of commodities like lime, which sift and hurt the hands of laboring men who handle them, and which are otherwise disagreeable packages to handle, to be contained only in a non-sifting package. Now just stop and think what that means to you, and stop further and think of the facts on which the proposition is founded. It comes pretty near being a logical thing for some legislature to do. Why shouldn't the package be non-sifting? Suppose you were to combat that proposition, what good reason would you have for saying that the package should not be non-sifting? I cannot think of any. You would be almost inhuman to any the laborer was not entitled to protection, and I don't think it would go if you did.

If you are to have a non-sifting package there is only one economical and suitable package I know of and that is the rope paper sack—the proper standard paper container. If by reason of negligence or by your helping along the pirates who give the paper shipping container business a black eye, the railroads had barred out paper, good and bad, altogether in a bunch, and then the legislatures should begin to say "You must put your products in a non-sifting package," where would you be? You would find that you would have to have burlap, jute or duck bags lined with some kind of expensive lining which would probably about double the cost of this already expensive package.

If you have ever inquired into lined burlap or jute bags, you know that they are very expensive at best, and besides, you would be at the mercy of the burlap, jute and cotton market speculative fluctuations. It seems to me that these are pretty serious propositions, but as my time is expiring, I will only speak of them briefly. There are many other instances and points which, if I had more time, I could discuss more fully, but I do, however, at least, want to bring these propositions to your attention, as indicating the need for serious thought

on this entire package proposition and upon the importance to you of preserving a suitable paper package, not only for its own intrinsic merit and benefit to you, but for the safeguard it is to you against the conditions I have mentioned.

Like some other speakers I have known, I do not as a rule, pay much attention to the subject assigned to me and so will not take up much of your time with this matter of the paper bag, vs. the cloth bag. Then, too, I think you are finding or will find the correct answer for yourselves. I do want, however, to call your attention to a few of the very important considerations that affect your package proposition.

The size of your cloth bag is very apt to get you gentlemen into trouble; the cloth lime bag that carries 100 pounds is about twice as large as the cement bag that carries 95 to 100 pounds, owing to the more fluffy nature of lime and the necessity of a bulkier package to contain 100 pounds of it. The cloth cement bag, universally used and known as the Osnaburg duck bag costs about \$90 a thousand in normal times, getting down as low as \$80 sometimes, and as high as \$110, or even higher than that. This bag is only about half as large as your lime bag, and it has only 95 pounds of cement in it. The cement men do not dare use an inferior bag to carry their product, because they know the consequence and you lime men cannot hope to get 100 pounds of lime, which is nearly twice as bulky, into a bag of any poorer material. That is the third point you should bear in mind. You also may find that your cloth bags may cost you more than you are paying for them now, because it is likely that the standard of the cloth bag may be advanced. Incidentally I have learned that there is quite a good deal of breakage in cloth bags on railroads; in fact, I am not certain that there is not a good deal more than there is in paper, provided good rope paper sacks are used, and you must face that. You may find that instead of your cloth bags costing you anywhere from \$100 to \$200 a thousand—that is what they do cost; one year they may be as low as \$100, but the next they are apt to be \$200, depending on what is going on in the speculative markets—you may find that you will have to use a bag that will cost you from \$200 a thousand up, as the market fluctuates. If that time comes, you will see once again how the paper container will be a tremendous help.

Strength Principal Question of Container.

In all this discussion I want you to get one point out of it, if nothing more; I would like to have you understand this, that there is only one question about the paper container and that is its strength. If it is good enough and strong enough to carry the lime, you all know that it is the best container. You also know what it relieves you from in the way of other costs and the annoyance, bother and trouble connected with cloth bags. Paper containers should be standardized just as the railroads are endeavoring to do. In assisting to get at that standard I took the formulas of the principal rope paper manufacturers of the country who, for years back have been supplying the best paper out of which these rope paper sacks are made, and they were all within about one per cent of each other as to the quality of rope that went into the paper; to be on the conservative side, I took about one per cent higher than the highest one of them and based my suggestions on this; there is no secret about how it was done, and the railroad people understand how it was done, and that is the reason they have been pretty nice in dealing with this matter, because they saw it was being put up to them strictly as a square proposition. That is what I want you to understand, that it is absolutely a square proposition and that your interests are mutual with the suitable quality paper people. They are just as anxious to keep that standard up as you are. If you lose the right to use paper and are limited to cloth in the future, you will suffer in consequence. If the paper people lose the right to

sell to you they will suffer in consequence. In other words, you are both in identically the same boat and you both should work toward a common purpose, namely, to keep the unsuitable paper containers where they belong.

You will say to me, "What is the use of bothering about the bad bags if they are going to make specifications? That is all up to the paper people." That is a natural question for you to ask. The specifications to be adopted will require that the manufacturer of the paper bags print or stamp on each bag his name and address, with a statement of the maximum number of pounds that the bag when filled with contents is made to carry, and also that the bag fully complies with the classification requirements for paper bags to carry such gross weight. That statement will have to be put on every bag. If it is not there, the railroads won't take the package. But the pirates who are in this business, in my judgment, some of them might not hesitate to put that statement on the bag and if they did put it on the bag, some of them might slip through, particularly if shielded or helped a little, although when the railroads do catch an offender the loss of bags, labor and other costs that must follow won't be so pleasant.

Now you don't want to put the railroads to a whole lot of trouble, because—taking a selfish view of the thing—you don't want to put any strain on this proposition that is unnecessary. What you do want to do is to help the railroads get the bags in accordance with those specifications and not help anybody to beat the game. The standard bag manufacturers of the country will be interested in seeing that the desire of the railroads is not thwarted by beating the game from their angle of it and the interests of you gentlemen, as I have just explained, are the same as theirs. You ought to be interested in seeing that no piratical bag manufacturers can beat that game, because if one does, he and the lime manufacturer who helps him is putting a nail in the coffin of the whole paper bag proposition. Perhaps those nails can be pulled out as fast as the pirate can put them in, but I fear not; why take chances, and why not help along the proposition to standardize?

For a year or more, the rope paper sack people have had a man working especially in New York to interest the users of cement in packing it in rope paper sacks. The cement manufacturers have differentiated against paper in the cost of the packages, with the result that considerable business has been switched. Superficially, when a buyer of an article is told that he will get back as much as he is charged for his bags, it looks pretty good to him and he naturally don't want to pay anything for the paper sack that carries no return value; it is also true that there are very few buyers, mighty few, who think much below the surface of a proposition of that kind. They do not analyze it. They have no conception of what the other costs are on top of the first cost of the sack, and it requires some effort to go over the ground and analyze the figures for them. Now I want to say that for about a year in New York City, this work has been going on of trying to teach contractors and users of cement, as a practical demonstration in their own work, and in their own yards, and in their own use of cement what the actual costs of the two packages are, and some of them have been amazed at the result. They have been going on the theory that the cloth bags cost them practically nothing because they returned all but a very few and got full credit for them. This often is not the fact. The number that they did not return was amazing to begin with, but the greatest part of it is the extra cost involved in the handling of the cloth bag proposition, the keeping tally, the counting, the storing, the handling, the paying freight, the book-keeping, the correspondence, the settlement and all those things involved in the use of a returnable package, which, when they are traced out by proper cost and accounting, amount to a large sum

of money. I am not going to tell you today what it amounts to in the case of cement; in fact I am not certain of it yet, as I have not covered enough cases to arrive at what I consider really trustworthy figures, but I do know that the same thing must be true in the lime sack business, because there is no substantial difference between the two situations, and I think you will be surprised and that your customers will be surprised if you would really put somebody to work to show them how much their cloth bags cost them, assuming that they return every single one of them. I think your eyes would be opened and if you would put an expert on your books to find out how much they cost you, your eyes would be opened still further. Cloth bags are not the cinch that they look to be on the surface.

Unfortunately, the paper sack end of the proposition is an uphill one, because, as is often the case through life, the truth is not plainly apparent and educational work is needed to bring it out into the light. You have to show the whole thing from start to finish, and it is not a thing that you can conduct easily, by writing papers, writing articles and trying to spread the education in that way. The only way you can do it is to go right onto the job and into the contractor's book-keeping office and follow his various processes through and show him where his costs are. He won't take the trouble to do it himself, but once he learns it he wants to use paper, and this has happened time and again in

(Continued on page 49.)

Eastern Lime Situation.

Fall agricultural lime demand in the Eastern section of the country is practically over, this trade having been above normal with some plants and not as good as usual with others. In one or two instances it is reported by producers that farmers have not been getting as much money for their products as in previous seasons, which has affected somewhat the demand for lime fertilizer. This is an unfortunate situation both to the lime producer as well as to the farmer, for if the soil of any farm is in need of lime treatment it ought to have it; otherwise such soil cannot be expected to produce as well when it fails to receive the proper care.

Building lime demand is quiet in the Southern territory and fair to good in the Northern section. The demand for this product around the Philadelphia territory is reported good, but in the New York City districts the demand is poor. The demand for building lime seems to be regulated somewhat by the condition of building and construction work in the larger cities of the country, wherein it is frequently noted that building operations are extensive in some sections and much below normal in others. The future for this trade will all depend upon the growth in building and construction work, which will be controlled largely by the general improvement in business conditions.

Kiln operation in the different Eastern manufacturing districts shows an average of about 70 per cent of capacity. This is a better showing than the present demand for lime products should justify. However, with the growth of the production of hydrated lime in the last few years, producers now take advantage of their dull periods of demand to manufacture for storage, which enables them to be ready for any sudden demand that may spring up. This accounts for the present production in excess of immediate demand existing at most of the plants producing hydrate.

A recent report from the Western New England district showed general trade conditions better than for some time, with demand for finishing lime rushing all kilns. Indications are in this section that the present good business will continue well into the winter season. Agricultural lime output is light in this district, comparing with a like condition in other Eastern sections.

SAND-LIME BRICK

South American Plant a Success

One of the most interesting sand-lime brick plants in the Argentine Republic is the one recently installed by D. I. Davis & Co., engineers, Chicago, Ill., the machinery having been purchased from the American Clay Machinery Co., Willoughby, Ohio. The plant was built primarily to supply the necessary brick for the immense packing plant for the Union Cold Storage Co., of London. This plant is located at Zerata, near Buenos Ayres, and in its construction six million sand-lime brick were required.

The engineers, Davis & Co., had previously built a packing plant at Sioux Falls, S. D., and had there used sand-lime brick. These brick were so satisfactory in every respect that when they came to design the huge plant for South America they would not consider any other make of brick, and therefore negotiated with the American Clay Machinery Co. for a complete sand-lime brick plant to produce the necessary brick. The machinery company made tests, and after carefully investigating the entire situation in South America, designed a single unit sand-lime brick plant and furnished the machinery equipment. The firm also sent its erecting engineer, William Modes, to South America to install the plant and operate it for the first year.

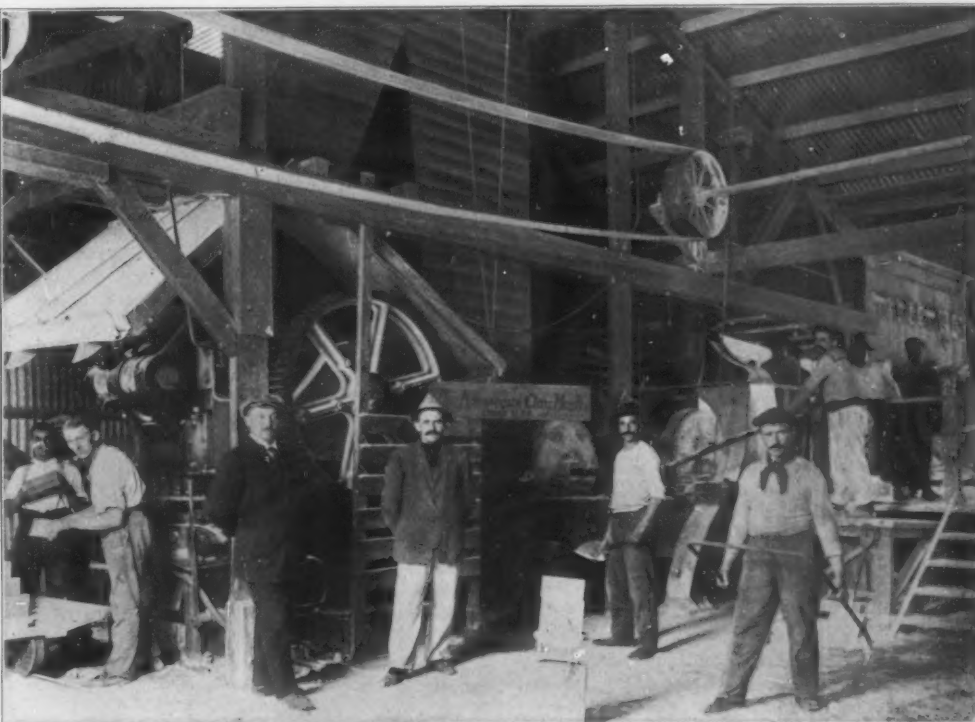
The plant was designed in accordance with the wet pan system. The six million brick required were manufactured in thirteen months, the output being rapid enough to keep pace with the building of the packing plant. The future output will, of course, be sold to the regular trade, as the reputation of the brick has been firmly established in Buenos Ayres.

The material from which the brick are made is Coroba high calcium lime and silica sand, mined from the Rio De La Parana. The brick were tested by the Buenos Ayres Polytechnical Institute, and the test showed the remarkably good compression of 6,500 pounds per square inch. The absorption was eight per cent.

The sand-lime brick plant starts work at five o'clock in the morning, operating until eleven a. m., after which there is a noon recess of two hours, followed by the continuous operation from one until six p. m. The model "C" press has a capacity of

21,600 brick per day, even with unskilled labor.

The sand-lime brick industry has a very promising future in South America, especially in Buenos Ayres, and besides the packing-plant numerous



SAND-LIME BRICK PLANT SHOWING MODEL C PRESS. MAN LEANING AGAINST THE POST IS SUPERINTENDENT MODES.

other edifices are being made of the brick. One of the finest of these is the subway, in which a large number of brick are used. Congress Palace and many other great buildings have also been made from the same brick. The price of these brick at Buenos Ayres, delivered at the job, are 40 pesos per thousand. The peso is equivalent to 96½ cents in American money.

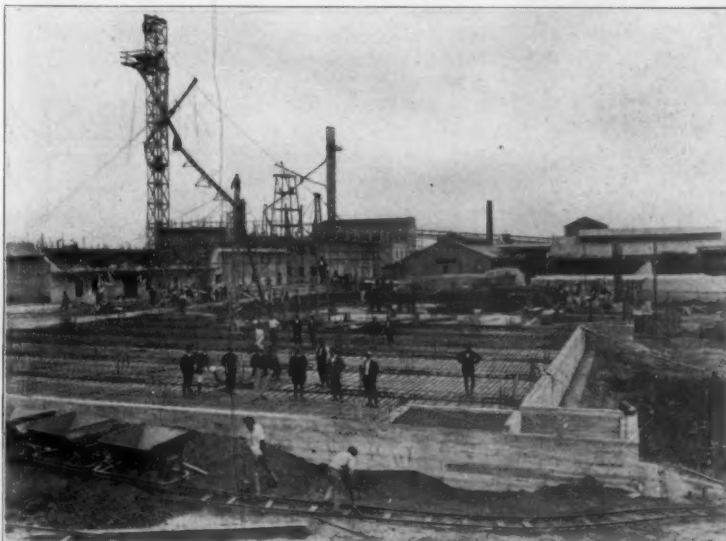
Business men of the South American metropolis prophesy that at the close of the European war the sand-lime brick industry will be given a tremendous impetus all around Buenos Ayres and throughout South America.

W. J. Carmichael, manager of the sand-lime brick department of the American Clay Machinery Co., secured the contract for the machinery for the sand-lime brick plant and supervised the preparation of the plans.

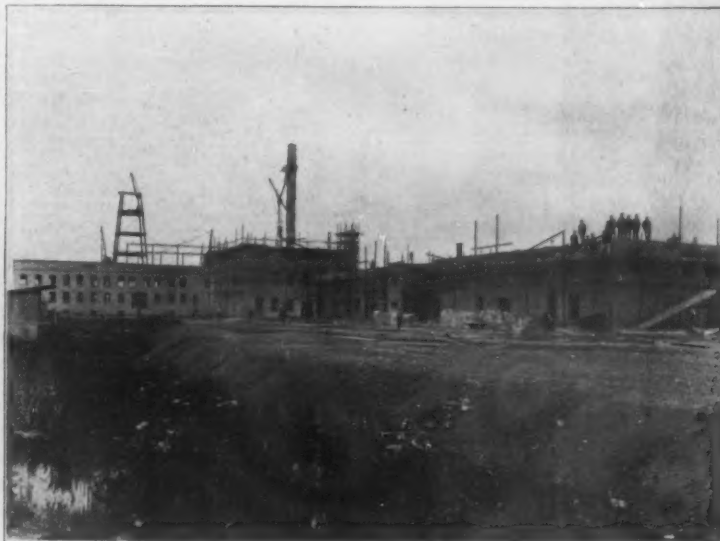
MILWAUKEE CONVENTION.

The annual meeting of the Sand Lime Brick Association will be held at the Republican House, Milwaukee, Wis., on December 7 and 8, 1915. Program

will be completed within a short time and forwarded to members. A cordial invitation is extended to all manufacturers of sand lime brick to join in the association work, to qualify and attend and take part in the progressive work of the organization. H. W. Terry, secretary, Lumsden building, Toronto, Ont., Can., will receive applications and supply all necessary information.



FOUNDATION OF PLANT OF UNION COLD STORAGE CO., OF LONDON, NEAR BUENOS AYRES.



UNION COLD STORAGE CO.'S PLANT APPROACHING COMPLETION. SIX MILLION SAND-LIME BRICK USED.

GYPSUM PRODUCTS

Blue Rapids Plant Among Finest.

The United States Gypsum Co. started the wheels of machinery in its new plant at Blue Rapids, Kan., on Sept. 22 and is now shipping from that plant a product which comes from one of the finest mills in the country. The buildings of the plant are of fireproof construction designed and equipped to insure efficient operation.

Blue Rapids gypsum rock has a nation-wide reputation and U. S. G. products manufactured from it have received the hearty commendation of the architectural profession and dealer trade within the shipping radius. With the new plant in operation, ample manufacturing facilities have been secured to meet the increasing demand of the district for plaster products, and the company has been placed in a position to give prompt shipments and excellent service. Officers of the company claim that the quality of the plaster of this particular plant is unexcelled by any other mill in the industry.

The United States Gypsum Co. owns, operates and has built calcining mills at practically every important gypsum producing section of the country, the machinery and equipment of which were designed and installed by its own engineering department. The experience of previous installations and close observation under all conditions has been the important factor in the efficient construction of the Blue Rapids plant.

Every member of the executive department, office and sales forces of the company points with pride to the latest addition to the plastering industry as another unit to the "world's largest producers of gypsum products."

The plant employs about 200 men and is operated under the management of C. L. Garrison, superintendent:

Almost coincident with this development was the establishment of a general office for the Southwest at Kansas City, in Suite 1020-1021, R. A. Long build-

ing. Frank Steeg, who has been assistant sales manager in charge of the Kansas City office, becomes sales manager in charge of the Southwestern business.

LOUISVILLE PLASTER NEWS.

Louisville, Ky., Oct. 19.—Business with the Louisville wall plaster concerns has shown a slight improvement during the past 60 days. Some of the concerns are tied up slightly just now awaiting completion of buildings to a point where plastering can be started, but numerous contracts are on file, and there is considerable business yet to be let.

The R. B. Tyler Co., building supply dealers, reports that wall plaster has been very active for some time past, and at present is one of the most active lines handled by the concern.

The plant of the Standard Wall Plaster Co. was recently damaged by fire to the extent of about \$100. The blaze was thought to have started from an overheated bearing on a sand conveyor. The conveyor is located at the top of a three-story building. The shell surrounding the conveyor was burned, but the firemen prevented the blaze from spreading to the main plant.

W. Selke, president of the Atlas Wall Plaster Co., stated that while business this month had been a little quiet still he was very well satisfied with conditions. There is plenty of work in sight and the plant is operating on a full schedule in order to accumulate stock. Mr. Selke is predicting a far better fall and winter business than that which was handled at the corresponding period of last year.

CONTRACTORS SEEK BETTER PRICES.

The plasterers of Kansas City are hoping that the new Building Association, in which all the building trades, it is expected, will ultimately cooperate, will assist their business to an increased extent.

While prices of plastering have not advanced materially in the past few years, wages have gone up from three to six dollars a day, until there is comparatively little profit, they say.

TOWN WANTS NEW BUILDING CODE.

The town of Warren, Ohio, is considering, along with other towns, the matter of a new building code. Councilman William Coale is chairman of the building code committee, and work is rapidly being pushed on the code, which will afford greater security for buildings and at the same time make building cheaper.

GOOD ROADS! ILLINOIS, GOOD ROADS!

"The eagerness with which tens of thousands of city dwellers this summer have utilized such highways as now connect Chicago with surrounding country and states is the strongest possible argument for putting every available ounce of energy behind the remaining good roads tasks in this state," according to an editorial writer in the Chicago Tribune. Despite sometimes painfully frequent bumps, links which have never known a real road builder, and whole sections which are only hard and smooth in fair weather, the automobilists have enjoyed the open country and nearby resorts as never before. With the comparatively small beginning which has been made the farmer has been given a taste of what it means to get his crops to market easily at any season of the year.

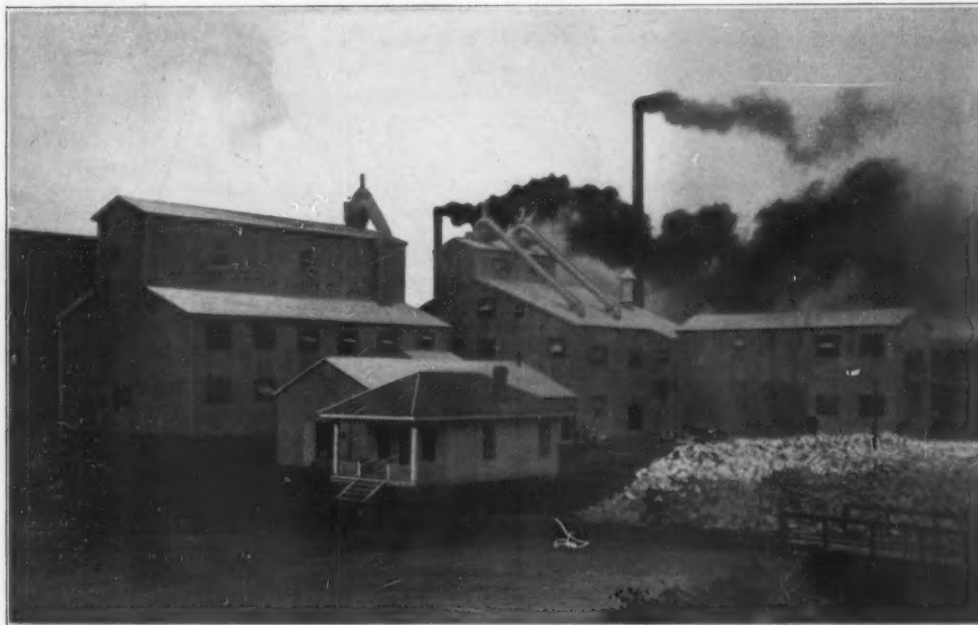
"Compared with the marvelous networks of highways which are to be found in such widely separated states as New York and California, the achievements of Illinois are almost insignificant. But a beginning has been made; the people have learned first hand something of what good roads may do for the city and the country. The demand for better highways in Illinois is stronger than ever before."

WINNIPEG-TO-NEW ORLEANS HIGHWAY.

An important scheme is being thought out at Winnipeg for the construction of a highway from Winnipeg to New Orleans. The first step in the launching of this project will be taken in New Orleans Nov. 15 and 16, when the Jefferson Highway Association is to be organized at a meeting of road enthusiasts.

Paving work in Milwaukee, Wis., during the season just closing totalled \$900,000, as compared with \$1,500,000 a year ago, according to a recent report made by F. W. Blodgett, superintendent of street construction. Mr. Blodgett says that unseasonable weather and lack of funds curtailed the work.

Frank P. Jones, general manager of the Canada Cement Co., states that although no large orders for cement have been received recently, things are much better in the general run of business than he anticipated under the general conditions prevailing.



NEW BLUE RAPIDS PLANT OF UNITED STATES GYPSUM CO.

CLAY PRODUCTS

Gotham Brick Demand Heavy.

New York, Oct. 19.—By Oct. 21 every brick plant in the Hudson river district will have closed down for the year. At present there is about 600,000,000 brick less than normal in sheds in that district. The total on hand is estimated to be not more than 600,000,000, counting the double coal brick in the last burn. There is much less brick than normal in the Raritan district, and lower Connecticut brick yards, which supply this market when the price passes the \$7 mark in this city, are having such a call for brick to meet the almost unprecedented building boom in New England that there is great possibility of brick being high in price this late autumn, winter and early spring.

It would not be conservative to attempt to estimate the probable cost of brick to dealers in this city if conditions eventuate as now seems likely. Even now great pressure is being brought to bear by manufacturers to hold out for at least \$7.00 a thousand. An attempt was actually made to get the market into shape for \$7.50 brick. Builders say that if there is that much stiffness in the market now, with building construction only 5.3 per cent above what it was at this time last year, there is no telling where brick prices will go if even a fair proportion of the 13.7 per cent gain in August and the 22.5 per cent gain in September plan filings develop, especially since New York's share in that increase has been 36 per cent in August and 42 per cent in September. Only one borough is holding back, namely, Brooklyn, and that is because of a temporary withholding of mortgage money pending announcement of terms for popular subscription to the Allies' loan of \$500,000,000. The official returns for New York, as reported by the superintendent of buildings to ROCK PRODUCTS AND BUILDING MATERIALS, showed a total of 10,138 new buildings with an estimated value of \$122,664,708, as compared with 9,173 new buildings with a possible cost of \$104,612,000 in the same month last year. This shows a gain of 965 new buildings and an added expenditure of \$18,052,143.

Brick manufacturers point to these figures as indicating a bigger building movement and consequently a greater demand for common brick, as cement prices also are going higher so as to take away the big demoralizing influence against free use of common brick by builders last year. It is upon the combined fact that money is easier, building demand is bound to increase, as shown by real estate activity along the lines of subway extension, and low stocks in mill yards that brick manufacturers are withholding estimates of possible brick prices and are not showing any disposition to cover customers for long terms.

PITTSBURGH BRICK BUSINESS BRISK.

Pittsburgh, Pa., Oct. 19.—Brick manufacturers are considerably encouraged this fall by the better building prospects. This applies particularly to the industrial towns where steel operations, and also the coal and coke business, are now going at high tide. Throughout the Pittsburgh district the steel mills are running at present at practically capacity. There is every evidence that this will continue for the next year. Coke ovens are on a ninety-five per cent capacity basis, and this also is increasing with the promise to continue at the larger rate. In all the industrial towns of Tri-State territory where these various plants are located there is going to be, if there is not already, a big scarcity of houses

As a result speculative builders are arranging to go ahead with big operations in these towns in the winter or spring, and in addition many corporations have found it necessary to build largely on their own account in order to provide homes for their increasing number of employees. Most of the brick plants in this district are still running, especially on building brick. Their stocks are quite heavy in many cases, but they anticipate unloading a lot of this stock before spring. The summer business was not satisfactory, as a rule. Prices have been badly cut and competition is still very keen in all lines.

News of the Field.

The Fallston Fire Clay Co. has had plans prepared for building 12 more kilns at its plant at Brady Run, near Beaver Falls, Pa. This will make its plant one of the largest manufacturers of face brick in Western Pennsylvania.

The Adamantine Clay Products Co. is receiving shipments of new machinery to be used in rebuilding its plant at North Mountain, near Martinsburg, W. Va., which was burned several weeks ago. The company expects to have its plant in full operation by Dec. 15. Last week it secured a big contract for paving block from Havana, Cuba. J. Tress, superintendent of the plant, has been in the East lately, looking after Government contracts.

The Hayes Run Firebrick Co., Oriston, Pa., has declared a three per cent quarterly dividend. Carroll W. Keller, of Lock Haven, Pa., is general manager of the company.

The Glass Brick Co., of Huntington, W. Va., recently purchased a considerable amount of steam power equipment and is also installing pressure blowers at its plant there.

The Harbison-Walker Refractories Co. has declared the regular quarterly dividend of one and one-half per cent on the preferred stock.

The plant of the Columbia Tile Co., Grafton, W. Va., will change hands very soon, it is reported, and be put in operation. The plant has been down for a long time.

The sale of the property of the C. W. Raymond Co., Dayton, O., with which Pittsburgh firms have had much business, has been ordered by Common Pleas Court in that city to a Boston concern. The Raymond company was a large manufacturer of brick-making machinery. The application for the sale was filed by J. C. Brannock, receiver.

J. E. Burgher, formerly editor of the Clay City Times, Clay City, Ky., is installing a plant near Clay City, for the manufacture of tile. He has been farming for the past two years, and has been making small quantities of tile as a side line. The demand proved so good that he decided to install a plant to manufacture the article. There is already one factory in the county, but there is a good deal of low ground which needs to be drained, and the two plants will have plenty to do.

Metropolitan Sewer Pipe Co., Bronx, New York; capital, \$10,000; manufacture brick, lime, cement, artificial stone, fireproofing materials, drainage and sewer pipe, etc.; directors, Thomas J. Byrne, Thomas J. Byrne, Jr., and Alfred F. Byrne, Two Hundredth street and Webster avenue, New York City.

FOREIGN ORDER FOR MILLION BRICK.

An order for a million brick, placed by representatives of a large British Honduras firm, is being filled by the Laurel Brick and Tile Co., Laurel, Miss. The first shipment already has gone for-

ward, and the balance will be shipped during the current month. The order came unsolicited and was the first large brick order for export ever placed with a Mississippi brick manufacturer. The order is indicative that manufacturers in the Southern territory may expect prosperity for next year instead of depression, as some of them expected.

BRICK MAKER PASSES AWAY.

Charles C. Wright, for 20 years foreman of the Louisville Fire Brick Co., at Highland Park, Ky., died recently at his home on the Grand Boulevard, following a short illness. Following his system of doing everything thoroughly, Mr. Wright selected his pallbearers two hours before his death. For many years he was prominent in efforts toward civic improvements in Highland Park, and added considerably in building up the city. The funeral was conducted from St. Anthony's Episcopal Church.

PAPER BAGS VS. COTTON AND BURLAP.

(Continued from page 46.)

New York, within the last year, and is going on today.

Comparative Costs of Cloth and Paper Sacks.

I have one little set of figures here that I would like to have you gentlemen go over with me, and if you have any sack committee, perhaps they will be useful. I am not sure whether you make your sales of lime on this basis at the present time or not, but if you do not, you could. Take the cloth bag, for example, the cloth bag holding 100 pounds, that being the size that you use now, and it takes 20 of them for a ton. Cloth bags, according to quite universally agreed figures, will go about five trips theoretically, before they are either lost or worn out. The percentage of loss runs all the way from 12 per cent to 15 per cent each trip. When you figure that in on the five trips, you will find that you do not get five trips out of the bags because you lose from 12 per cent to 15 per cent every trip; in other words, on 20 bags you lose about two every trip, and on four trips you will find that you have lost enough to bring down the actual number of trips you get from these 20 bags to four times 20, instead of five times 20. In other words, you lose two bags every trip on five trips and you find that out of 20 bags, you get not over 80 trips of 100 pounds each, instead of 100 trips. Therefore, if you take for example, four tons of lime, which is 8,000 pounds, it will require 20 bags to carry it, before the bags are either worn out or lost. Now those 20 bags at 15 cents apiece, cost you \$3. Divide that by four and you have a cost of 75 cents per ton flat cost for cloth bags.

Put your same 8,000 pounds of lime in paper. The sacks that most of you are using are 40-pound sacks, therefore, it would take 200 of these 40-pound sacks to carry that four tons. These rope-paper sacks are costing you—they have not cost you more for a long time I know—\$17 a thousand, and I think sometimes they have been less, so let us take the top figure. That is 1.7 cents per bag. You either sell them to your customer, or if you do not, you should, at two cents per bag. You can do so, and it is perfectly feasible to do so. That reduces your cost of paper sacks down to 1.4 cents per sack, which for four tons or about 200 bags, means \$2.80, and divided by four, is 70 cents a ton, or five cents per ton less than the first flat cost of the cloth bags.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

:: THE :: BOURSE

Advertisements will be inserted in this section at the following rates:

For one insertion 25 cents a line
For two insertions 45 cents a line
For three insertions 60 cents a line

Eight words of ordinary length make one line. Headings counts as two lines. No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED—A Mechanical Draftsman who has had experience in charge of a drafting room employing several men. He must be thoroughly familiar with, and have had several years of practical experience in designing, erecting and handling of machinery for elevating and conveying material in factories, warehouses, mills, mines, quarries and sand and gravel plants, also gravel washing and screening machinery. He must also have a complete knowledge of mechanical power transmitting machinery, and its installation. All correspondence from applicants will be kept strictly confidential. Applicants will please give experience and address P. O. Lock Box No. 3097, San Francisco, California.

WANTED—Experienced plaster salesman with good references. None other need apply. Territory Eastern part of Pennsylvania. Address Box 1074, care ROCK PRODUCTS AND BUILDING MATERIALS.

EMPLOYMENT WANTED

WANTED—Position as Manager of crushed stone plant; have fourteen years' experience and thoroughly understand the practical as well as executive part of the industry. Would prefer working partnership or capacity or low cost bonus for merit. Highest reference furnished as to personality and ability. Address Box 1076, care ROCK PRODUCTS AND BUILDING MATERIALS.



Anchor Brand Colors

**For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable**

Manufactured by **C. K. Williams & Co.**
Correspondence Solicited **Easton, Pa., U. S. A.**

Young man, thorough knowledge of marble business, with executive ability, seeks position. Ten years experience in quarry, Finishing, Estimating and selling. Address Box 1078, care ROCK PRODUCTS AND BUILDING MATERIALS.

PLANTS FOR SALE

FOR SALE—GREAT "WHITE CLIFFS" CEMENT BED In Arkansas. Enough to supply world for century, including 2,092 acres land. Transportation facilities, river and three railroads; land alone worth price asked for all. Sinking wells near it for "Oil and Gas." Fine prospects for both. For full particulars write J. B. DRURY, 406 Market St., St. Louis, Mo.

FOR SALE.

Cement Mill and 110 Acres of land, formerly of Vindex Portland Cement Company and of Reading Cement Company, near Evansville on branch of P. & R. R. R. Company. Capacity 600 bbls. per day. Suitable for producing lime fertilizer or crushing and pulverizing rock products. Large cement rock deposits, developed quarry, lime stone plentiful in neighborhood. For information or examination of premises, apply to CHAS. T. NAGLE, Sec'y, BONDHOLDERS' PROTECTIVE COMMITTEE, 918 Centre Ave., Reading, Pa.

Second largest lime plant south of the Ohio River for sale, and makes the highest grade lime. Established trade. Address E. W. R., care ROCK PRODUCTS AND BUILDING MATERIALS.



Stained with Cabot's Shingle Stains and lined with Cabot's Sheathing Quilt. Robert W. Spencer, Jr., Architect, Chicago.

Cabot's Building Specialties

Cresote Stains or Shingles, Siding, Clapboards, Trimming Boards, and all other Exterior Woodwork. **Waterproof Cement and Brick Stains** for waterproofing and artistically coloring cement and brick buildings. "Quilt" for lining houses to keep out cold or heat, for sound-deadening in floors and partitions, and for insulating cold storage and refrigerators. **Conserve Wood Preservative** for preserving Posts, Planks, Sills and all other exposed timbers. Mortar Colors, Protective Paints and Metals, Waterproofing Compounds, etc.

SAMUEL CABOT, Inc., Mfg. Chemists
BOSTON, MASS., U. S. A.
1133 Broadway, New York 24 West Kinzie St., Chicago

MACHINERY WANTED

Crusher Wanted—Used or new, medium or large receiving opening. State lowest cash price. Address BOX 1079, care ROCK PRODUCTS AND BUILDING MATERIALS.

The Wiggim Crushed Stone & Sand Co., of Germantown, Ohio, is in the market for 30 tons of 56-pound good relaying rail and angle bars. Delivery the last of November.

BUSINESS OPPORTUNITIES

FOR SALE—5 Lime kilns in good condition, doing a good business, with 70 acres Lime Ledge, 20 acres Farm Land, 5 Tenement houses, 1 good up-to-date house, 1 store and stock of goods. Must be sold to settle the estate of L. H. Felton at Highgate Springs, Vt. Write for particulars to P. J. Farrell, Swanton, Vt. P. J. Farrell, Swanton, Vt., E. W. Foster, St. Albans, Vt., Administrators.

WANTED.

To interest parties desiring to invest in a superb 90-acre limestone property equipped with limekilns and large crushing plant now in operation, with view of adding capacity. Best location in Ohio. Address care Box 10, ROCK PRODUCTS & BUILDING MATERIALS.

WANTED—Sand, Gravel or Stone business in exchange for improved farm. Address Box 1075, care ROCK PRODUCTS AND BUILDING MATERIALS.

FOR SALE

An Entire Stone Crusher Outfit

On account of running out of rock we offer for sale at a bargain: One No. 4 Austin Crusher, Screens, Cars, Drills, Tools, Steam Engines, a new Jeffrey Pulverizer, one new Motor, and rails. Address

Moline Stone Company
253 Second Street, Moline, Illinois

RAILS

all sizes—small or large lots. New and relaying. We are familiar with quarry requirements and know just what you need. Frogs, switches, spikes and all track accessories. Immediate shipment from stock.

L. B. FOSTER CO.
PARK BUILDING PITTSBURGH, PA

The DEALER is offered
CALVERT MORTAR COLOR
for its TRUE WORTH

To Himself, the Builder, the Owner and the Public
By its only maker

CALVERT MORTAR COLOR WORKS
DEPT. R.

Warner & Wooster Sts., BALTIMORE, MD.
Sold to Dealers only A Trial WILL convince you

A Manufacturer of a Builder's Specialty

and who is an advertiser in ROCK PRODUCTS AND BUILDING MATERIALS recently stated (name upon request): "We find the advertising in your journal productive of better and more inquiries than we get from any other two mediums we have used."

The dealers in builders' supplies are realizing more and more that the biggest profits in their business are to be found in the Builders' Specialty Department. Manufacturers of waterproofing, coal chutes, metal lath, roofing, plaster board, etc., should take advantage of this growing demand and

ADVERTISE in ROCK PRODUCTS & BUILDING MATERIALS

"From the producer to the dealer"

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

CLASSIFIED BUSINESS DIRECTORY

BAGS AND BAG TYERS.

Feuerhill Mfg. Co. (bag tyers).
Jaite Company, The.
Urschel Bates Valve Bag Co.

BELTING.

H. W. Caldwell & Co.
Chain Belt Co.
Dull & Co., R. W.
Goodrich Co., B. F.
Imperial Belting Co.
Link Belt Co.
Revere Rubber Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

BRICK.

Belden Brick Co.
Metropolitan Paving Brick Co.

BRICK CLAMPS.

The P. D. Crane Co.

BRICK PAVING.

Metropolitan Paving Brick Co.

BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.
H. W. Caldwell & Co.
Hais Mfg. Co., Inc., Geo.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link Belt Co.
McMyler-Interstate Co.

CABLES.

American Steel & Wire Co.
Dull & Co., R. W.
Sauerman Bros.

CALCINING MACHINERY.

Atlas Car & Mfg. Co.

CARS, INDUSTRIAL.

Atlas Car & Mfg. Co.
Austin Mfg. Co.
Hais Mfg. Co., Inc., Geo.
Lakewood Engineering Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

CASTINGS.

Allis-Chalmers Mfg. Co.
Traylor Eng. & Mfg. Co.

CEMENT, CAEN STONE.

Cleveland Bldgs. Supply Co.

CEMENT, HYDRAULIC.

Carolina Portland Cement Co.

CEMENT, PORTLAND.

Atlas Portland Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
Cincinnati Portland Cement Corp.
Coplay Cement Mfg. Co.
Crescent Portland Cement Co.
Huron-Wyandotte Port. Cement Co.
Kansas City Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Northwestern States Portland Cement Co.
Ohio & Western Lime Co.
Phoenix Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Works.
Union Sand & Material Co.
Whitehall Portland Cement Mfg. Co.
Wolverine Portland Cement Co.

CHAINS.

Chain Belt Co.
Jeffrey Mfg. Co.
Link Belt Co.

CLAYWORKING MCHY.

American Clay Mch. Co.
Bartlett, C. O., & Snow Co.

COAL CHUTES.

Interstate Mfg. Co.

COLORINGS DRY AND MORTAR.

Samuel Cabot.
Calvert Mortar Color Wks.
Chattanooga Paint Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

COMPRESSORS.

Allis-Chalmers Mfg. Co.
Clayton Air Compressor Co.

CONCRETE MIXERS.

Chain Belt Co.
Lakewood Engineering Co.
Miscampbell, H.
Power & Mining Mach. Co.

CONCRETE REINFORCEMENT.

American Steel & Wire Co.

CONSULTING GEOLOGISTS.

Hunt, Robt. W., & Co.

CORNER BEADS.

North Western Expanded Metal Co.
Sykes Metal Lath & Roofing Co.

CRANES—LOCOMOTIVE AND GANTRY.

Cleveland Ry. Supply Co.
Link Belt Co.
McMyler-Interstate Co.

CONVEYORS AND ELEVATORS.

Allis-Chalmers Manufacturing Co.
Atlas Car & Mfg. Co.
Austin Mfg. Co.
Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Chain Belt Co.
Dull, Raymond W., & Co.
Ehram, J. B., & Sons Mfg. Co.
Hais Mfg. Co., Inc., Geo.
Jeffrey Manufacturing Co.
Link Belt Co.
McMyler-Interstate Co.
McLanahan Stone Machine Co.
Manierre Eng. & Mach. Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Toepfer, W., & Sons.
Webster Mfg. Company.
Weller Mfg. Co.

CRUSHERS AND PULVERIZERS.

Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Austin Mfg. Co.
Bacon, Earl C.
Bartlett, C. O., & Snow Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Butterworth & Lowe.
Chalmers & Williams.
Ehram, J. B., & Sons Mfg. Co.
Jeffrey Manufacturing Co.
K. B. Pulverizer Co.
Kent Mill Co.
Lehigh Car, Wheel & Axle Co.
Lewistown Foundry & Machine Co.
McLanahan Stone Machine Co.
Pennsylvania Crusher Co.
Power & Mining Mach. Co.
Raymond Impact Pulverizer Co.
Sturtevant Mill Co.
Traylor Eng. & Mfg. Co.
Webb City & Cartersville F. & M. Wks.
Williams Pat. Crusher & Pulverizer Co.

DRAIN TILE.

American Clay Co.
Vigo-American Clay Co.

DREDGES.

Osgood Co., The.

DRILLS.

Loomis Machine Co.

DRYERS.

American Process Co.
Bartlett, C. O., & Snow Co.
Link Belt Co.
Ruggles-Coles Eng. Co.

ENGINEERS.

American Process Co.
Bacon, Earl C.
Dull, Raymond W., & Co.
Fuller Engineering Co.
Hunt, Robt. W., & Co.
Improved Equipment Co.
Meade, R. K.
Sauerman Bros.
Schaffer Eng. & Equip. Co.
Smith & Co., F. L.
Stephens-Adamson Mfg. Co.
Traylor Eng. & Mfg. Co.
Yates, P. K.

ENGINES.

Allis-Chalmers Mfg. Co.
Power & Mining Mach. Co.

EXCAVATORS.

Cable Excavator Co.
Raymond W. Dull Co.
Hais Mfg. Co., Inc., Geo.
Indianapolis Cable Excavator Co.
Link Belt Co.
McMyler-Interstate Co.
Osgood Co., The.
Sauerman Bros.
Weller Mfg. Co.

FIRE BRICK.

Carolina Portland Cement Co.
Improved Equipment Co.
Thornton Fire Brick Co.

FLOOR HARDENER.

Ceresit Waterproofing Co.

FURNACES FOR SPECIAL PURPOSES.

Improved Equipment Co.

GAS PRODUCERS.

Improved Equipment Co.

GATES.

Hais Mfg. Co., Inc., Geo.

GEARS.

Caldwell, H. W., & Son Co.
Chain Belt Co.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

GLASS SAND MACHINERY.

Lewiston Fdy. & Mach. Co.

GYPSUM BLOCK.

American Cement Plaster Co.
U. S. Gypsum Co.
Plymouth Gypsum Co.

GYPSUM—PLASTER.

Best Bros. Keene's Cement Co.
Cardiff Gypsum Co.
Carolina Portland Cement Co.
National Mortar & Supply Co.
Ohio & Western Lime Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.
Wheeling Wall Plaster Co.

HAIR.

Ohio & Western Lime Co.

HOISTS, ELECTRIC AND STEAM.

Allis-Chalmers Mfg. Co.
Link Belt Co.
Hais Mfg. Co., Inc., Geo.

HOLLOW CLAY TILE.

American Clay Co.
Metropolitan Paving Brick Co.
Vigo-American Clay Co.

HYDRATING MCHY.

Atlas Car & Mfg. Co.
Kritzer Co., The.
Miscampbell, H.

LIME.

Carolina P. C. Co.
Kelley Island Lime & Trans. Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.

LIME, HYDRATED.

Kelley Island Lime & Transport Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Scioto Lime & Stone Co.

LIME KILNS.

Atlas Car & Mfg. Co.
Improved Equipment Co.

LOADERS AND UNLOADERS.

Ambursen Company.
Chain Belt Co.
Hais Mfg. Co., Inc., Geo.
Jeffrey Mfg. Co.
Link Belt Co.
Manierre Eng. & Mach. Co.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

LOCOMOTIVES.

Davenport Locomotive Wks.

MANGANESE STEEL.

Allis-Chalmers Mfg. Co.
Link Belt Co.

METAL LATH.

Bostwick Steel Lath Co.
Carolina Portland Cement Co.
North Western Expanded Metal Co.
Sykes Metal Lath & Roofing Co.
Trussed Concrete Steel Co.

MOTOR TRUCKS.

Kissel Motor Car Co.
Pierce-Arrow Motor Car Co.

PAINT AND COATINGS.

Cabot, Samuel.
Calvert Mortar Color Wks.
Ceresit Waterproofing Co.
Chattanooga Paint Co.
Gordon-Hittl Co.
Ricketson Mineral Paint Co.
Williams, C. K., & Co.

PERFORATED METALS.

Allis-Chalmers Mfg. Co.
Johnson & Chapman.
Hendrick Mfg. Co.
Toepfer, W., & Son.

PLASTER.

See Gypsum.

PLASTER BOARD.

American Cement Plaster Co.
Plymouth Gypsum Co.
U. S. Gypsum Co.

PLASTER BOND.

Ceresit Waterproofing Co.

PLASTER MCHY.

Butterworth & Lowe.
Dunning, W. D.
Ehram, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

PREPARED ROOFING—SHINGLES.

Carolina Portland Cement Co.
Reynolds Asphalt Shingle Co.

PUMPS.

Allis-Chalmers Mfg. Co.
International Steam Pump Co.

QUARRY CARS.

See Cars.

ROAD MACHINERY.

Austin Mfg. Co.
Osgood Co., The.
Troy Wagon Works.

ROOFING-METAL.

Sykes Metal Lath & Roofing Co.

SAND.

Union Sand & Material Co.

SAND AND GRAVEL WASHING PLANTS.

Dull & Co., Raymond W.
Link Belt Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Co.
Weller Mfg. Co.

SAND LIME BRICK MACHINERY.

Amer. Clay Machy. Co.

SCALE CARS.

Atlas Car & Mfg. Co.

SCREENS.

Allis-Chalmers Mfg. Co.
American Pulverizer Co.
Butterworth & Lowe.
Chain Belt Co.
Dull & Co., Raymond W.
Ehram, J. B., & Sons Mfg. Co.
Hais Mfg. Co., Inc., Geo.
Hendricks Mfg. Co.
Johnston & Chapman Co.
Link Belt Co.
McLanahan Stone Machine Co.
Power & Mining Mach. Co.
Stephens-Adamson Mfg. Co.
Sturtevant Mill Co.
Toepfer, W., & Sons.
Webster Mfg. Company.
Weller Mfg. Co.

SECOND-HAND MACHINERY.

Bourse.

SEWER PIPE.

Plymouth Clay Products Co.

SHEAVES, BLOCKS AND VALVES.

Hais Mfg. Co., Inc., Geo.

SINK AND FLOAT TESTERS.

Pennsylvania Crusher Co.

SREADERS, ROAD.

Troy Wagon Wks. Co., The.

STEAM SHOVELS.

Osgood Co., The.
Thew Automatic Shovel Co.

STUCCO RETARDER.

National Retarder Co.

TRAILERS, TRACTORS AND MOTOR TRUCKS.

Troy Wagon Wks. Co., The.

TEAMWAYS.

Ambursen Company.
American Steel & Wire Co.
Link Belt Co.

TUBE MILLS.

Allis-Chalmers Manufacturing Co.
Power & Mining Mach. Co.
Smith & Co., F. L.

WAGONS—DUMP AND REVERSIBLE.

Troy Wagon Wks. Co., The.

WALL PLUGS AND TIES.

Sykes Metal Lath & Roofing Co.

WATERPROOFING.

Cabot, Samuel, Inc.
Carolina Portland Cement Co.
Ceresit Waterproofing Co.
General Fireproofing Co., The.
Sandusky Portland Cement Co.

WEIGHING MACHINES.

Schaffer Eng. & Equip. Co.
Sturtevant Mill Co.

WIRE AND WIRE FENCING.

American Steel & Wire Co.

WIRE ROPE.

American Steel & Wire Co.
Lechen, A., & Sons Co.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

BLAST HOLE DRILLS



We make the "CLIPPER"—The drill that is USED!

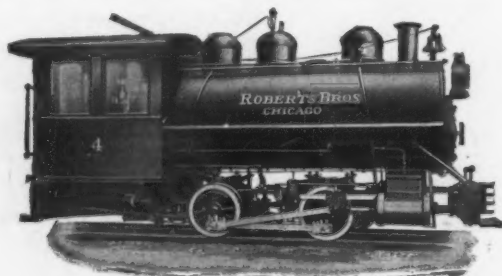
LOOMIS MACHINE CO., TIFFIN, OHIO

WHITEHALL

PORTLAND CEMENT

Whitehall Cement
Manufacturing Co.

1722 Land Title Bldg.
Philadelphia



Builders of all types of locomotives for industrial services.

Davenport Locomotive Works
DAVENPORT, IOWA



CALDWELL MACHINERY

FOR HANDLING

Stone, Gravel, Sand, Lime, Cement, Etc.

Screw and Belt Conveyors,
Steel Elevator Casings and
Buckets, Gears, Cut and
Cast Teeth, Link Chain Belt-
ing, Shafting, Pulleys,
Sprocket Wheels, Etc.

SEND FOR CATALOG No. 38

H. W. CALDWELL & SON CO.

CHICAGO

Western Ave., 17th to 18th Sts.

NEW YORK

Hudson Terminal, 50 Church St.

ROCK PRODUCTS and BUILDING MATERIALS

Index to Advertisements

OCTOBER 22, 1915

<p>Allis-Chalmers Mfg. Co. 7</p> <p>Ambursen Co. 16</p> <p>American Clay Machine Co. 60</p> <p>American Clay Co. 18</p> <p>American Process Co. 18</p> <p>American Pulverizer Co. 8</p> <p>American Steel & Wire Co. 10</p> <p>Atlas Car & Mfg. Co. 60</p> <p>Atlas Portland Cement Co. 60</p> <p>Austin Mfg. Co. 9</p> <p>Bacon, C. Earle. 4</p> <p>Bartlett, The C. O., & Snow Co. 8</p> <p>Belden Brick Co. 18</p> <p>Best Bros. Keene's Cement Co. 9</p> <p>Bonnot Co., The. 31</p> <p>Books for the Trade. 17</p> <p>Boatwick Steel Lath Co. 17</p> <p>Bourse, The. 5</p> <p>Bradley Pulv. Co. 5</p> <p>Butterworth & Lowe. 9</p> <p>Cable Excavator Co., The. 17</p> <p>Cabot, Samuel, Inc. 50</p> <p>Caldwell, H. W., & Son Co. 52</p> <p>Calvert Mortar Color Works. 50</p> <p>Cardiff Gypsum Plaster Co. 56</p> <p>Carolina Portland Cement Co. 56</p> <p>Ceresit Waterproofing Co. 32</p> <p>Chain Belt Co. 11</p> <p>Chalmers & Williams. 54</p> <p>Chattanooga Paint Co. 54</p> <p>Chicago Portland Cement Co. 54</p> <p>Clayton Air Compressor Wks. 51</p> <p>Classified Business Directory. 51</p>	<p>Cleveland Builders' Supply Co. 15</p> <p>Cleveland Railway Supply Co. 15</p> <p>Clinchfield Portland Cement Corp. 2</p> <p>Coplay Cement Mfg. Co. 56</p> <p>Crane, P. D., Co. 56</p> <p>Davenport Loco. Works. 52</p> <p>Dull & Co., Raymond W. 14</p> <p>Dunning, W. D. 29</p> <p>Ehram, J. B., & Sons Mfg. Co. 6</p> <p>Faerberhill Mfg. Co. 4</p> <p>Farrell Fdy. & Mch. Co. 4</p> <p>Poster Co., L. H. 50</p> <p>Fuller Eng. Co. 18</p> <p>General Fireproofing Co. 13</p> <p>Goodrich, B. F., Co. 13</p> <p>Gordon-Hittl Co. 56</p> <p>Haisa, Geo., Mfg. Co. 17</p> <p>Hannibal Lime Co. 18</p> <p>Hendricks Mfg. Co. 18</p> <p>Hunt, Robert W., & Co. 18</p> <p>Huron, Wyandotte Portland Cement Co. 2</p> <p>Imperial Belting Co. 32</p> <p>Improved Equipment Co. 18</p>	<p>Indianapolis Cable Excavator Co. 17</p> <p>International Steam Pump Co. 10</p> <p>Interstate Mfg. Co. 17</p> <p>Jaeger Machine Co. 29</p> <p>Jalfe Co., The. 50</p> <p>Jeffrey Mfg. Co. 11</p> <p>Johnston & Chapman Co. 4</p> <p>K-B. Pulverizer Co., Inc. 11</p> <p>Kansas City Pt. Ct. Works. 29</p> <p>Kelley Island Lime & Trans. Co. 55</p> <p>Kent Mill Co. 10</p> <p>Kissel Motor Car Co. 53</p> <p>Kritzer Company, The. 53</p> <p>Lakewood Eng. Co., The. 16</p> <p>Lehigh Car Wheel & Axle Wks. 4</p> <p>Lehigh Portland Cement Co. 57</p> <p>Leschen, A., & Sons Rope Co. 29</p> <p>Lewistown Fdy. & Mch. Co. 8</p> <p>Link Belt Co. 15</p> <p>Loomis Machine Co. 52</p> <p>McLanahan Stone Mch. Co. 4</p> <p>McMyler Interstate Co. 15</p> <p>Marquette Cement Mfg. Co. 57</p> <p>Meade, Richard K. 18</p> <p>Metropolitan Paving Brick Co. 18</p>	<p>Miscampbell, H. 56</p> <p>Mitchell Lime Co. 55</p> <p>Moline Stone Co. 50</p> <p>National Lime & Stone Co. 55</p> <p>National Mortar & Sup. Co. 54</p> <p>National Retarder Co. 30</p> <p>Northwestern Expanded Metal Co. 12</p> <p>North Western States Portland Cement Co. 57</p> <p>Ohio & Western Lime Co. 54</p> <p>Osgood Co., The. 15</p> <p>Pennsylvania Crusher Co. 2</p> <p>Phoenix Portland Cement Co. 56</p> <p>Pierce Arrow Motor Car Co. 56</p> <p>Plymouth Clay Products Co. 54</p> <p>Plymouth Gypsum Co., The. 54</p> <p>Power & Mining Mach. Co. 54</p> <p>Raymond Bros. Impact Pulv. Co., The. 5</p> <p>Revere Rubber Co. 2</p> <p>Reynolds Asphalt Shingle Co. 15</p> <p>Ricketson Mineral P. Wks. 15</p> <p>Ruggles-Coles Eng. Co. 2</p> <p>Sandusky Portland Cem. Co. 18</p> <p>Saunders Bros. 17</p>	<p>Schaffer Engineering & Equip-ment Co., The. 29</p> <p>Scioto Lime & Stone Co. 54</p> <p>Smidth, F. L., & Co. 13</p> <p>Stephens-Adamsen Mfg. Co. 31</p> <p>St. Louis Port. Cement Co. 29</p> <p>Sturtevant Mill Co. 8</p> <p>Sykes Metal Lath & Roofing Co. 12</p> <p>The Automatic Shovel Co., The. 53</p> <p>Toepfer, W., & Sons. 12</p> <p>Traylor Eng. & Mfg. Co. 11</p> <p>Troy Wagon Works Co., The. 3</p> <p>Trussed Concrete Steel Co. 30</p> <p>Union Sand & Material Co. 29</p> <p>U. S. Gypsum Co. 50</p> <p>Urschel Bates Valve Bag Co. 60</p> <p>Vigo-American Clay Co. 50</p> <p>Webb City & Carterville Fdy. & Mch. Co. 10</p> <p>Webster Mfg. Co. 59</p> <p>Weller Mfg. Co. 14</p> <p>Wheeling Wall Plaster Co. 52</p> <p>Whitehall Cement Mfg. Co. 52</p> <p>Williams, C. K. 50</p> <p>Williams Patent Crusher & Pulverizer Co. 8</p> <p>Wolverine Portland Cement Co. 57</p> <p>Yates, Preston K. 18</p>
---	--	---	---	--

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

HYDRATED LIME

Its Marvelous Increase In Consumption

The Kritzer Service

Any lime can be successfully hydrated by our process; but whether your lime can be hydrated and successfully marketed is another question. We study your proposition and the possibilities of its commercial success, and advise you accordingly. Our ten years' experience in the business is a valuable assistance in this. Ours is not a mail order proposition. We investigate our customers' proposed plant thoroughly before we will enter into a contract with them. We turn down more prospects than we advise to go into the business. We can't afford to have any failures. Our customers' success is our success.

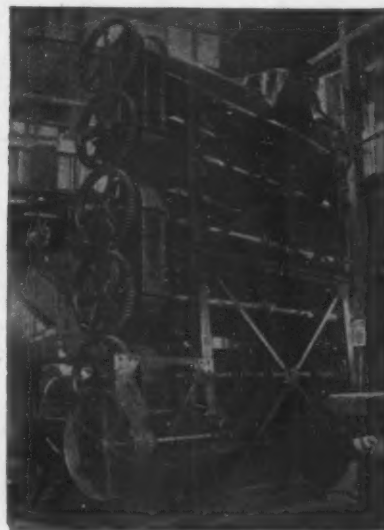
WRITE TO US

Are You Meeting the Increasing Demand for Hydrated Lime?

There is nothing forced or unnatural about the growing popularity of this product. It is a natural growth resulting from a widespread awakening to the advantages of Hydrated Lime for a variety of uses—as waterproofing for Concrete, in wall plaster, and in almost every case where lime is called for. In hydrated form it is weatherproof, more easily handled, and better adapted to modern methods, both of commerce and construction. A continued growth of the demand may therefore be expected.

The Kritzer Way

insures a product which will hold a continued place for itself on the market. We install plants complete, designed by our own expert engineers to meet your local conditions and turn out a uniform grade of Hydrated Lime of the highest standard, and with the greatest economy in cost of production. The Kritzer Continuous Hydrator, and the accessories installed with it, are the recognized standards in this line.



KRITZER CONTINUOUS PROCESS

THE KRITZER COMPANY Chicago, Ill.



THE

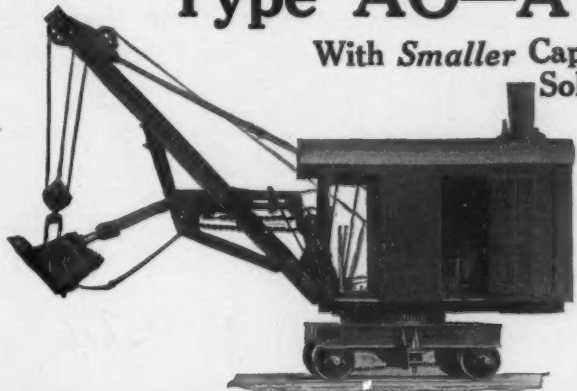


THEW SHOVELS



Type AO—A Smaller Thew Shovel

With Smaller Capacity and Smaller Operating Cost—
Sold at a Lower Price.



MORE than 1,200 Thews are in use in many different industries throughout the country, and they have conclusively proven their adaptability for a great range of work.

Until recently, the Type O Shovel, weighing 18 tons, was the smallest and most generally used machine, and the range

of sizes varied from that up to Type 4, weighing 55 tons. Their exceptional success for highway, railroad and general excavating work, proved their design and operating features to be excellent and emphasized the demand for a somewhat smaller Thew Shovel of more limited capacity.

The Type AO Thew Steam Shovel was designed to meet this demand, and it affords this class of concerns an economical advantage, equal to that enjoyed by their larger competitors. It is small, light, simple in operation and readily portable. Weight, 15 tons; dipper, $\frac{3}{4}$ cu. yds. capacity; hoisting engines, 5x6 in.; swinging and crowding engines, 4x5 in.; boiler built to Massachusetts specifications for pressure up to 150 lbs.

The advantage of this shovel, which handles a great variety of small jobs speedily and profitably, is of utmost value. Everyone having material to handle, who heretofore considered their business not sufficiently large to justify the purchase of a steam shovel, will be interested by obtaining complete data about this Type AO Thew.

The Thew Automatic Shovel Co. Lorain, O.
Send us at once full data on the advantages of the Type AO Thew Shovel advertised in Rock Products.
Name
Address



THE THEW AUTOMATIC SHOVEL CO. LORAIN OHIO



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

BANNER HYDRATE LIME

*Carries more sand for Mason Work,
than any other lime on the market*

FOR INFORMATION APPLY TO THE

NATIONAL MORTAR & SUPPLY COMPANY
A. H. Lauman, President
PITTSBURGH, PA.



**IF IT IS
LIME
WE MAKE IT**
(STRONGEST IN OHIO)

BULK and Barreled -:- "MASON'S HYDRATE"—For Brick-work, plastering and masonry. -:- "LIME FLOUR"—Hydrated Finishing Lime—Best on the Market. -:- "CLOVER GROWER"—Land restorer, for the farmer—none better. -:- "CARBO HYDRATE"—Soil sweetener—crop producer. -:- Prompt shipments. -:- A dealer wanted in every town. -:- **WRITE OR PHONE FOR PRICES.**

The Scioto Lime and Stone Co.
Delaware, Ohio



DIME SAVINGS BANK,
DETROIT, MICH.
McNulty Brothers,
Plastering Contractors.

A Million Dollars

Is not spent carelessly. That is why all the walls of this finest of Michigan buildings are finished with

"Lion Brand
Rock
Wall Finish"
Hydrated Lime.

Write us

**Ohio and
Western
Lime Co.**
Huntington, Indiana

*The Largest
Producers
of Ohio and
Indiana
Lime*

PLYMOUTH GYPSUM CO.

FORT DODGE, IOWA

Manufacture what is known as **QUALITY BRANDS**
ORDER A CAR AND BE CONVINCED

Plymouth Plaster and Finishes White Sand Float Finish
Plymouth Wood Fibre Plaster Best Bros. Keene's Cement
Acolite Cement Plaster (the long keeper) Sackett Plaster Board
Exterior Plaster Tiger Brand Hydrated Lime
Fireproof Gypsum Partition Tile

Write for advertising matter and prices

BRANCH OFFICES: {1015 Lumber Exchange, Minneapolis
5040 St. Lawrence Ave., Chicago

Red, Brown, Buff and Black



**MORTAR
COLORS**

The Strongest and
Most Economical
on the Market.



Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.
Chattanooga, Tennessee

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

A Contractor's Endorsement of Hydrated Lime for brick mortar



Ask us for further information and prices
MITCHELL LIME COMPANY, Mitchell, Indiana



This is what you want in Hydrated Lime, Mr. Dealer

Lime that is perfectly slaked, of extreme fineness, that is positively guaranteed not to "pop."

Monarch Hydrated Lime is of absolute uniformity, no underburned or overburned lime to be eliminated.

It's a pleasure to dealers to recommend this well known Brand. It means more business, more calls for Monarch Brand, More Profit for you.

Monarch publicity service is a new aid to you in selling and creating a call for Monarch Hydrated Lime. Be a Monarch Man. Write us today.

National Lime & Stone Co.
CAREY, OHIO

Architects and Contractors
Know

"TIGER BRAND"



This is the advertising that sends customers to you for Tiger Brand White Rock Finish (Hydrated Lime).

Sweet's Catalog—1500 page reference book used by 5,000 architects.

Architectural Record—A magazine on building read by 5,000 architects, 3,000 contractors and engineers, 1,000 builders.

Plaster Specifications—16 page book of specifications sent to 10,000 architects and builders.

Hydrated Lime Plaster—2 Editions—25,000 copies of a book on lime plastering.

Circulars—100,000 illustrated leaflets distributed among the trade.

Are You Handling TIGER BRAND?

The Kelley Island Lime & Transport Co.
Cleveland, Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Clyde Hydrator with Hood
"The common sense way"

SIMPLICITY IS THE KEYNOTE OF SUCCESS

IT does not take a "master mind" to install a CLYDE Hydrating plant, nor does it take a "high priced" engineer to run one. If **YOU**, Mr. Lime Manufacturer, realized how simple it is to obtain a PERFECT HYDRATE, with the CLYDE HYDRATOR you would place your order with us by FIRST MAIL. Write us today—NOW, and let us explain to you what CLYDE PROCESS hydrated lime is and how to obtain the best results, then

Use your own judgment—it's up to you

H. MISCAMPBELL, Duluth, Minn.

Patentee and Sole Manufacturer

The first Portland cement manufactured in America

1866

1915



COPLAY CEMENT MANUFACTURING CO.

Mill, Coplay, Lehigh Valley, Penna.
PHILADELPHIA NEW YORK BOSTON JACKSONVILLE, FLA.

Don't Neglect
your second-hand machinery
We can sell it
Read the Bourse

DEALER COOPERATION + DEALER COOPERATION + DEALER COOPERATION + DEALER COOPERATION D

**GORDON
COATING**



FOR SURFACES of Cement, Stucco, Brick, etc.

Through our years of experience in the paint business, we have developed a coating for surfaces which is unsurpassed.

Gordon Coating is manufactured in white and eight shades.

This is a dealers' proposition. Write to-day for our interesting offer.

GORDON - HITTL CO., 85 Purchase St., BOSTON, MASS.

N DEALER COOPERATION + DEALER COOPERATION + DEALER COOPERATION + DEALER COOPERATION

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere.

Also Southern agents for the "Dehydratino's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing.

GET OUR PRICES

CHARLESTON, S. C.
ATLANTA, GA.

BIRMINGHAM, ALA.
NEW ORLEANS, LA.

PHOENIX PORTLAND CEMENT

Unexcelled for all uses

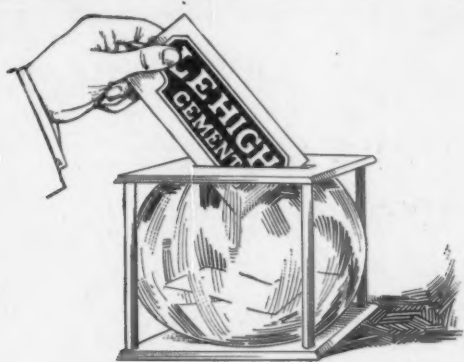


Manufactured by

Phoenix Portland Cement Co.
NAZARETH, PA.

Sole Selling Agent, WILLIAM G. HARTRANFT CEMENT COMPANY
Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



A Vote for More Permanent Construction

Modern building codes demand greater sanitary precautions, fireproofness, and safety to the occupants of the building.

The Modern Dealer is compelled to handle those materials which enable the builder to meet such requirements.

The successful dealer is he whose far-sightedness makes him choose not merely a class of generally excellent materials, but those materials in each line which have proved their superiority, and will add permanence to the other qualities they build into the structure.

LEHIGH CEMENT

CONCRETE FOR PERMANENCE

MILLS:

Ormdod, Pa.; West Coplay, Pa.; Foglesville, Pa.; New Castle, Pa.; Mitchell, Ind.; Mason City, Ia.; Metaline Falls, Wash.

OFFICES:

Allentown, Chicago, Spokane, New York City, Philadelphia, Boston, Minneapolis, Savannah, Des Moines, New Castle, Buffalo

12 Mills—Annual Capacity Over 12,000,000 Barrels

EVERY dealer selling cement should know more about Marquette Portland Cement, "The Certified Cement;" it's to your advantage. A postcard from you brings the information.

Marquette Cement Mfg. Co.

1335 Marquette Bldg., Chicago



Northwestern Portland Cement

The Reliable Portland Cement

A Portland Cement for the

NORTHWEST

NORTHWESTERN STATES PORTLAND CEMENT COMPANY

MASON CITY, IOWA



"WOLVERINE"

THE ALRIGHT CEMENT

Made Right

Sold Right

Works Right

Wears Right

The Best is None Too Good For You.
Insist Upon

"WOLVERINE"

Write for Booklet and Quotations.

Factories at Coldwater and Quincy, Mich.
Capacity 3500 Daily.

W. E. COBEAN, Sales Agent, Coldwater, Mich.



Wolverine Portland Cement Company

MAIN OFFICE, COLDWATER, MICHIGAN

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

A Suggestion to Sales and Promotion Managers of belting, crushers, conveyors, and other quarry equipment.

How do you analyze and plan your sales promotion work? Take your advertising, for instance—Do you study your possible mediums with the following points in view?—(1) Editorial excellence; (2) Completeness and "Buying Power" of circulation; (3) Service and co-operation rendered to advertisers; (4) *Results*.

Aren't these the important points—and if you were sure that such a publication existed—wouldn't you be willing to invest some money in its advertising pages? Why not?—when your investment is practically guaranteed.

Now read the following outline of what Rock Products and Building Materials is — not written by us—but written as we would write it.


Service to Advertisers

Editorial Excellence and RESULTS

Quality of Circulation "Buying Power"

ALL QUOTATIONS FOR IMMEDIATE ACCEPTANCE, AND SUBJECT TO CHANGE WITHOUT NOTICE.

ADDRESS ALL COMMUNICATIONS TO THE COMPANY



THE CYCLONE

DRILL COMPANY

MANUFACTURERS OF
DRILLING AND PROSPECTING MACHINERY, VERTICAL ENGINES,
SHILLERS' SUPPLIES, CONTRACTORS AND
QUARRY BLAST HOLE DRILLS.

HOMER OFFICE AND FACTORY: ORRVILLE, OHIO
CHICAGO OFFICE: 518 NATION ST. BLDG.
NEW YORK OFFICE: 400 MADISON AVENUE, 10TH FL.

WESTERN UNION CODE
CYCLONE
ORRVILLE, OHIO.

ORRVILLE, OHIO

7/29/14.

Rock Products & Bldg. Matis.,
The Francis Publ. Company,
537 So. Dearborn Street,
Chicago, Ill.

Attention Mr. J. C. Moore.

Gentlemen:-

In regard to the weekly Bulletin of Advance Information which you have been publishing during the past eight weeks, beg to advise that we have been following up the information contained therein very closely, and from the large percentage of replies we have thus far received we are certainly convinced that this Bulletin is a valuable medium for securing new business. However, on account of the fact that Big Blast Hole Drills such as we manufacture are not purchased, as a rule, until new companies in the Lime, Cement and Quarry field have completed the construction of their plants, there is no particular advantage in receiving this information in advance of your semi-monthly issue of "ROCK PRODUCTS & BUILDING MATERIAL", but for manufacturers who make machinery for crusher plants etc., we are sure that this advance information is an absolute essential to their business.

Our particular line is well taken care of in the "Cement", "Lime", "Gypsum", and "With the Quarries" sections of "ROCK-PRODUCTS & BUILDING MATERIALS", and the enormous volume of business we have secured from this source of information proves to us beyond all doubt that your paper is the first, in its field, and has secured business for us which otherwise would have been impossible to secure.

It may be of interest to you to learn that the writer calls upon the quarry trade frequently, and it very seldom happens that "ROCK PRODUCTS & BUILDING MATERIALS" is not on the desk of the general manager of the Cement or Lime company, or in other words, in the hands of the man who holds the reins and decides what equipment shall be purchased, and for this reason, our continued advertising in your paper.

Very truly yours,
THE CYCLONE DRILL COMPANY.
Per *J. C. Moore*

JVL/L.

Doesn't the above letter express advertising value?

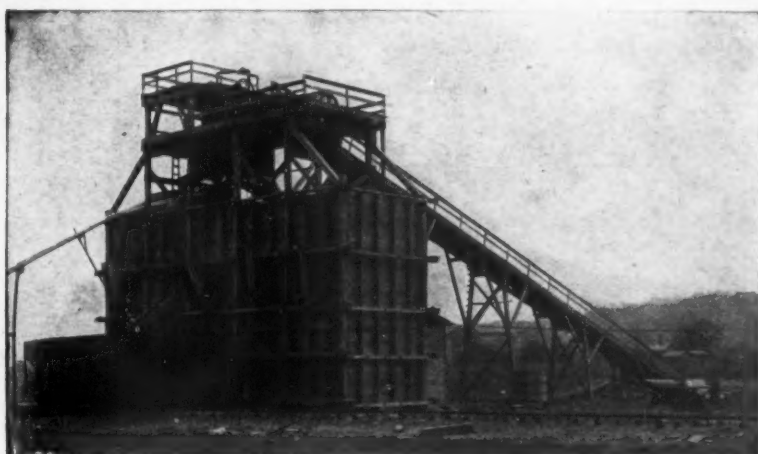
Our Service and Sales Bureau will be glad to tell you more about our efficiency and particular value to your company.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

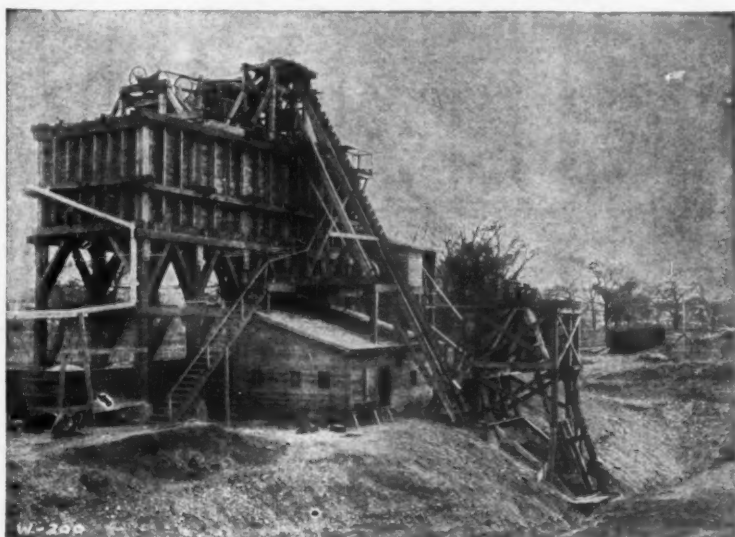
For Sand and Gravel Washing



A Cyl-cone plant which elevates, screens and washes 800 yards of sand and gravel per day. The oversize is crushed, re-elevated and re-screened into marketable sizes of crushed gravel.



A Cyl-cone plant producing six grades of washed sand and gravel at the rate of 600 yards per day. It is complete with crushing plant.

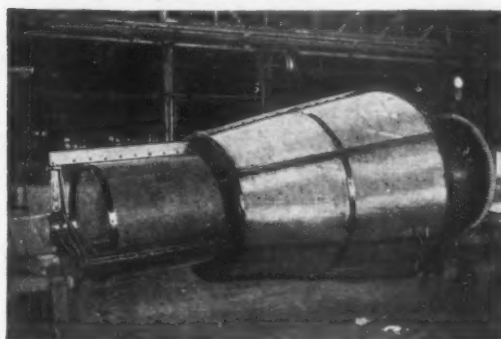


An inexpensive Cyl-cone plant of small capacity. This plant proved so satisfactory and efficient that it has since been enlarged and its capacity increased from 200 yards per day to 600 yards.

The Cyl-Cone Screen

A Single
Self-Contained Unit, with Simple
Single Drive

Makes all commercial size separations, with easy removal of undesirable material.



Permits building bins low, with consequent maximum of strength with minimum of lumber.

Avoids excessive heights, thereby reducing the distances to which materials must be elevated and water pumped. This means perpetual economy in power and maintenance.

Here, then, is the ideal combination of:

Simple Construction
Low First Cost
Minimum Power Consumption
Easy Maintenance
High Productive Efficiency

Let us plan your plant for next season's work

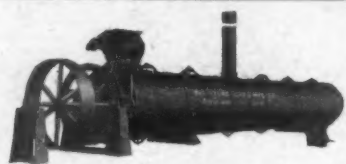
The Webster M'f'g Co.
Tiffin, Ohio

CHICAGO
McCormick Bldg.

(115)

NEW YORK
90 West Street

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



Lime Hydrators, Kilns, Calcining and Quarry Cars



No. 274
End Dump Quarry Car.



No. 217-H Rocker Side Dump Car
Also made in end dump. Above
car made for loading with
steam shovel.

Reduce Your Handling Costs BY USING ATLAS CARS AND LOCOMOTIVES

Where a trolley wire or third rail is undesirable investigate our storage battery locomotives. Made in several styles and sizes. Cars to suit every requirement.

THE ATLAS CAR & MFG. CO.
909 Marquette Road
Department 6
Cleveland, Ohio

YOUR BAG
of Atlas Portland
Cement is just the
same as the other
fellow's!

Absolute, unvarying
uniformity and
satisfactory work-
manship, certainly an
important feature of
the best concrete.



Your Concrete
should be best—buy
“ATLAS”

“Concrete for Permanence”

WRITE US FOR PRICES ON

PAPER BAGS

for

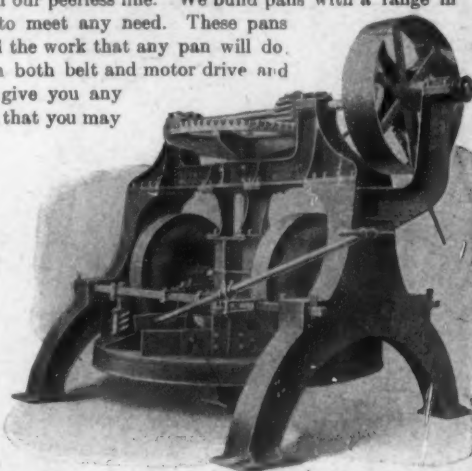
Lime, Cement, Plaster, Ground
Stone, Fertilizer, Etc.

The Urschel-Bates Valve Bag Company
Toledo, Ohio

[Address all communications to the company at Toledo, Ohio.]
BRANCH FACTORY: Niagara Falls, Ontario, Can.

YOUR PAN NEEDS

THIS pan is the identical pan required for your plant and it should speak to you convincingly of our pan quality. It has put many Sand-Lime Brick Plants on a paying basis and will make money for you. There is no line of pans made which will compare with the “Built Right, Run Right” line and your needs can be fully taken care of from our peerless line. We build pans with a range in size and capacity to meet any need. These pans are adapted for all the work that any pan will do. We have them in both belt and motor drive and will be pleased to give you any points on our pans that you may inquire about. A poor pan is an expensive proposition. Its inefficiency shows in the quality of your product and the size of your repair bills. It also limits your capacity by handicapping the rest of the equipment. Real economy would suggest that your pans be the best possible. We will be pleased to talk pans or any other equipment with you.



We Build Complete Equipments for
Sand-Lime and Clay Brick Plants

The American Clay Machinery Co.
Willoughby, Ohio, U. S. A.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

